GOVERNMENT OF THAILAND

THE THIRD NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PLAN
(1972-1976)

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NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT BOARD
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INTRODUCTORY REMARKS

by

Field Marshal Thanom Kittikachorn

Chairman of the National Economic Development Board

Ever since 1961, when Thailand promulgated the first National Plan for economic and social development, the Government has been fully aware that these national plans are extremely important in establishing the economic development policy of the country. This is evident from the fact that, as a result of the actions based upon policies incorporated in the National Economic and Social Development Plans, the Nation's fiscal and financial situation has become stable, and we enjoy the confidence both of international lending agencies and different countries throughout the world. For these reasons, the Government has always insisted upon the preparation of National Economic and Social Development Plans, on the basis of which appropriate economic policies for the country can be established.

The present National Economic and Social Development Plan is the Third Plan having a five year duration and covering fiscal years 1972 - 1976. The preparation of the Third Plan was carefully carried out with a view to bringing about improvements over previous plans, including establishment of proper ways and means to correct serious problems and obstacles arising during implementation of the previous Plan, providing a new and appropriate framework suitable for dealing with contemporary economic and social conditions, as well as enlarging the scope of planning to cover the private sector to the maximum extent practicable. In this connexion, as the Head of Government, I am pleased to observe that the present Economic and Social Development Plan is more comprehensive than the previous plans, and also is capable of being implemented on schedule by the Government.

The successful preparation of the Third National Economic and Social Development Plan (1972 - 1976) is based upon the close cooperation and collaboration among agencies within the different ministries, of the Executive Committee and of different committees established by the Office of the National Economic Development Board. In particular, this success would not have been possible without the capable work of the NEDB Office, with its officers working with ceaseless and untiring effort, physically and spiritually, and cooperation from the private sector, the Board of Trade of Thailand as well as different industrial and commercial associations in the private sector, to whom I - in my capacity as chairman of the National Economic Development Board - wish to convey my thanks and deep appreciation.

INTRODUCTORY REMARKS

by

M.L. Dej Snidvongs

Chairman of the Executive Committee

National Economic Development Board

The previous National Economic and Social Development Plans (1961 - 1966 and 1967 - 1971) involved, mainly, the provision of basic infra - structure, most of which has now been completed. These Plans included important projects connected with national highways, feeder roads, irrigation, electrical energy, public utilities and projects within the agricultural sector, as well as some projects concerning expansion of education at all levels. There is no doubt that these previous development efforts have provided a firm foundation for the economic development of the nation.

The scope of the Third National Economic and Social Development Plan (1972 - 1976) has been widened considerably. It now covers pertinent considerations in the social sector, in addition to certain economic sectoral activities designed to improve the productive structure in a manner consistent with local and foreign market requirements, in order both to improve the immediate economic situation and to provide benefits in the long run. The social development aspects of the Third Plan are designed to improve the quality of life of the Thai people. Such efforts inevitably involve activities in the education, health and welfare fields. During the Plan period, the Government considers that activities concerning all levels of education to be of extreme importance. Special efforts and attention will, therefore, be focussed upon the improvement and expansion of primary and secondary education in rural areas.

As the private sector has an important role in the development of the country, the Third Plan clearly specifies an appropriate policy framework within which the private sector can cooperate to develop industries and certain activities in the service sector. Those who invest in industries which are export - oriented will be given certain tax and tariff advantages to cover certain components of the cost which heretofore have been borne by the exporters. From similar considerations and actions it is clear that the Third Plan was prepared in close cooperation and collaboration between the Government and the private sector.

For the people, particularly those in the agricultural sector, to gain the maximum benefit from the various economic and social development projects, cooperation and coordination among different ministries and departments is essential. Should obstacles arise to impede successful implementation of a project, the interested agencies must work together to eliminate the problems and obstacles, so that the project can be successfully implemented to contribute to the well - being of the people.

INTRODUCTORY REMARKS

by

Mr. Renoo Suvarnsit

Secretary - General

National Economic Development Board

The Third National Economic and Social Development Plan (1972 - 1976) represents the result of a joint effort between the National Economic Development Board and different ministerial and departmental agencies, various public enterprises and the private sector, particularly the Chamber of Commerce of Thailand and different Boards of Trade. In addition, valuable assistance has also been received from various international agencies both on an official and personal basis. In my capacity as head of the Office of the National Economic Development Board, I wish to extend my thanks to the agencies recorded above which should also take pride in having contributed towards the success of such an important national undertaking. I wish to thank all of NEDB officers who have participated with such untiring effort, including working extra hours and on official holidays so that the present National Economic and Social Development Plan could be promulgated on time. My thanks especially go to the officers in the Economic and Social Planning Division, those in different sectors, in the Executive Committee Secretariat and to the typists who have worked tirelessly to incorporate numerous changes in the draft until the task was finally completed. They deserve full commendation.

On this auspicious occasion the Office of the National Economic Development Board wishes to record its thanks to H.E. Field Marshal Thanom Kittikachorn, Prime Minister and Chairman of the National Economic Development Board, H.E. M.L. Dej Snidvongs - Chairman of the Executive Committee, H.E. General Sawaeng Sena Narong - Minister Attached to the Office of the Prime Minister, members of the Cabinet, the Executive Committee members and members of the National Economic Development Board once more for their support and interest in this work from its commencement until the Royal Decree announcing the promulgation of the National Economic and Social Development Plan (1972 - 1976) on December 1, 1971.

ADDRESS

of

His Excellency Field Marshal Thanom Kittikachorn

The Prime Minister

On The Promulgation of the Third National Economic and
Social Development Plan (1972 - 1976)

My fellow countrymen :

Today there has been proclaimed the Royal Decree for implementation of the Third National Economic and Social Development Plan covering the period of five years from October 1, 1971 - September 30, 1976. Since the Third Plan will be of paramount importance to the future of our country, as the head of the Government, I would like to take this auspicious occasion to inform my fellow countrymen of the policies and highlights of the national economic and social development effort embodied in the Plan, so that all of you will be aware of the Government's intentions and its strong desire to accelerate the development of our beloved country.

The National Economic and Social Development Plan, proclaimed by a Royal Decree today, has been carefully prepared to provide guidelines for implementation of development for the well - being of the Thai people by :—

1. Establishing the overall financial target for public development expenditures during the next five years taking into consideration the overall national resource constraints and socio-economic changes, as well as changes in the international situation which will affect our country.

2. Identifying projects which will bring about national economic and social progress. These include investment in economic infra-structure projects which have to be further expanded, and new projects considered to provide the basic foundation for future development. The major objective is to raise the standard of living of the people and to strengthen national stability and security.

3. There are some problems and obstacles which hinder the achievement of the aforementioned objectives. In order to overcome these obstacles, the Plan proposes both short - term measures to solve immediate problems, and long - term measures to construct a firm foundation for the increase of the nation's productive capacity.

During the First National Economic and Social Development Plan (1960 - 1966), favourable weather conditions and strong demand for our products in foreign markets made it possible for Thailand to increase the level of foreign exchange reserves which could then be utilized for future expansion of the economy. Later on, during the early period of the Second Plan, the Government followed a policy of suppressing inflation by utilizing foreign exchange for productive uses and the Second Development Plan was formulated in accordance with the economic situation of that period.

On the whole, the Second Plan has been successful in attaining its major objectives and targets. During this Plan period most of the public development programmes and projects in various sectors were implemented successfully in accordance with the planned targets. The achievement of some programmes and projects even surpassed the targets. However, there were some projects in the transport and communications sector implementation of which lagged behind the targets. During the Plan period the private sector has been encouraged to play a more active role in national development. In summary, while there were short-falls in the implementation of some projects due to changes in external market conditions and the war in Vietnam, economic progress during the Second Plan was still maintained at a rapid pace, indicated by the increase of national income at 7.2 per cent per annum.

Thailand's economy has been growing steadily during the decade 1960 - 1969. During this period, the average annual growth rate of the Gross Domestic Product was approximately 8 per cent, per capita income rose from approximately 2,000 baht in 1960 to 3,150 baht in 1969, representing an increase of 4.7 per cent annually. However, in 1969, the economy was affected by changes originating from foreign sources. A balance of payments problem emerged for the first time during the past 10 years resulting in a decrease in the foreign exchange reserves of the country. Aware of this problem, the Government has already undertaken many corrective measures in accordance with the strategy laid down in the Third National Economic and Social Development Plan, which aims at reducing the use of foreign exchange on the one hand, and increasing foreign exchange earnings on the other. In order to save foreign exchange, on July 1, 1970 the Government increased import duties, business and excise taxes to reduce unessential imports. To increase foreign exchange earnings the Government has adopted programmes for export promotion. The most important measures are as follows :—

1. Promoting the Competitiveness of Thai Rice in Foreign Markets :

The premium levied on most grades of rice was abolished to reduce the cost of exporting Thai rice to obtain two favourable advantages, namely,

a. To improve the competitiveness of Thai rice in world markets.

b. To increase returns to farmers.

Furthermore, the expansion of rice exports has been attempted through provision of long-term credits to importers of Thai rice.

2. Formulation of the Programme for the Acceleration of Production and Marketing of Agricultural Products. There are many agricultural products such as maize, soy beans, livestock, shrimp, cotton and tobacco which already have definite markets and good prospects for further expansion. Therefore, the acceleration of production and marketing of these products is an effective measure to increase export earnings for the country in a relatively short period.

3. Reduction of Costs of Production of Exported Industrial Products, through improving the Efficiency of Domestic Industries. In addition, the Government will assist in the provision of credit and capital for industrial investments as well as the establishment of capital markets.

These timely, short-term Government measures together with the flexibility of the private sector, have resulted in some improvement in the economic situation toward the end of the Second Plan. During the first six months of 1971, the total value of imports decreased while the total value of exports increased. The balance of payments ran a surplus of about 320 million baht as against a deficit of 660 million baht for the same period last year. In addition, the improved prospects for the export of major products such as rice, kenaf and tapioca indicate that the rate of expansion of the economy is slowly increasing.

The development policies of the Third Plan which will be pursued by the Government in the acceleration of national development are as follows :—

1. To restructure the economic system and to promote economic growth;
2. To maintain economic stability;
3. To promote economic growth in the rural areas and to reduce income disparities;
4. To promote social justice;
5. To develop manpower resources and to create employment;
6. To foster the role of the private sector in economic development.

The major target of the Plan is to increase Gross Domestic Product at an annual average rate of 7 per cent per year. By the end of the Third Plan, in 1976, per capita income will be increasing at the rate of about 4.5 per cent, which is higher than the average rate of 4 per cent during the Second Plan period.

This target for national economic and social development has been established with the major objectives of developing the human resources simultaneously with natural resources. It is felt that human resources play a leading role in the effort to increase the national productive capacity. Moreover, the development of human resources is a means to promote and to maintain the desired peaceful and stable society. In addition, the Government feels that human resources in the rural areas of the country are great national assets which cannot afford to be neglected. Instead, they should be developed to be efficient forces in support of our endeavours in national development. The increase in efficiency of the rural labour force is very closely related to raising incomes and living standards of rural people, which will eventually contribute to achievement of social justice.

A major target to be achieved in the effort to increase the level of production is rapid expansion of the agricultural sector. In order to increase the earnings of the rural population, special emphasis has been placed on the restructuring of the economic system through diversification of agricultural and industrial production. In agriculture, the major development measures include accelerated crop production programmes and more rapid agricultural diversification, as well as the promotion and improvement of marketing in accordance with the market demands. The output of major existing agricultural crops will be increased and the production costs lowered through such measures as : research aimed at increasing yields by seed improvement and extension, land development, soil fertility development, the expansion of water distribution system, the increase of agricultural credit, as well as the improvement of marketing systems to support production. The adoption of these measures will help to increase the annual growth average in the agricultural sector to 5.1 per cent as compared with 4.1 per cent achieved during the Second Plan. As for industry, special emphasis will be placed on the promotion and expansion of priority industries, particularly:

(1) Agricultural processing industries;
(2) Export oriented industries;
(3) Import substitution industries.

Furthermore, emphasis will also be given to mining development and the undertaking of geological surveys to identify additional mineral deposits. These measures, if undertaken simultaneously, will after a considerable period, result in a more balanced and stable economy.

Apart from the effort to increase the income of the rural population through the development of agriculture as prescribed in the Plan, there are also several other projects prepared by the Government to promote growth in rural areas of the country. These include the construction of feeder roads and rural roads envisaged by the Plan to increase the total length of the network to 6,000 and 15,000 kilometres respectively. The programme for irrigated agriculture at the farm level has as its objective the utilization of water in the areas served by the completed large irrigation dams. This programme will begin in the Chao

Phraya river basin covering an area of 4.4 million rai. During the Plan period the construction of new large irrigation projects will be strictly limited in order to channel more investment into irrigated agriculture at the farm level. In addition, special support will also be given to the project for rural agricultural processing industry such as vegetable oil mills, animal feed plants, flour mills, canning factories, block rubber factories and forestry products factories. These programmes for the promotion of rural production will help the expansion of the market for agricultural products and thereby raise the income of the farmers and help alleviate the trade deficit.

The financing of development programmes embodied in the Third Plan requires a substantial amount of foreign exchange. Hence, maintaining international financial stability while implementing the Plan will be of paramount importance. The Third Plan aims at maintaining international reserves at a suitable level through the promotion of traditional export products. The production costs of traditional export products will be reduced through tax measures which will make Thai products more competitive in foreign markets. Meanwhile, the Government will improve its effort to develop new export markets for Thai products and promote service activities for tourists, particularly those undertaken by the private sector. Furthermore, the Government will also support the commercial banks and insurance companies to expand their services to meet the expanding demands of trade and industrial activities.

During the Third Plan approximately 60,000 million baht of development expenditures will be channelled to rural areas of the country in order to promote economic growth and reduce income disparities. Furthermore, the Government will build up the economic foundations of development which will help to bridge the gap between standard of living and income of the towns and the villages. This will be undertaken through agricultural development projects and other regional development projects which have been carefully formulated and scrutinized by various Government agencies. Regional development planning is undertaken for the first time during the Third Plan to include projects for the North and Northeast. The scope of planning will be expanded to cover other regions of the country during the Plan period.

Together with the adoption of economic measures to promote social justice, the Third Plan also aims at greater diversification of social services, particularly the provision of medical and health services as well as water supply, to cover more rural areas and help narrow the gap between the living standard of people in the rural and urban areas of the country.

To improve the efficiency of manpower and to develop employment opportunities, the Government will emphasize the improvement of education at all levels, with special emphasis given to primary and vocational education. By 1976 it is expected that there will be 7,258,500 primary level students, 874,500 secondary level students, 26,500 vocational and technical level students, 119,400 teacher training students, 63,750 university students and 237,400 adult students and out - of - school youths. At the same time the Government will undertake development activities in various sectors of the economy in order to generate an additional 2.6 million job opportunities.

As regards manpower and employment development, the Government has formulated a development policy, programmes and projects for the expansion of primary education to cover the whole Kingdom, with particular attention to the improvement and the accelerated extension of compulsory education to Prathom 7. It is also the Government's policy to increase employment opportunities and to assist the Thai people to obtain better paid occupations. To achieve this policy objective the vocational education programme will be improved and expanded, particulary in agricultural and industrial vocational schools, which will help to support the role of the private sector in national development. In addition, there will be programmes for the improvement of university level education which will help to produce highly qualified manpower to satisfy the labour market demands. Due to the rapid increase of the role of the private sector in national development, the improvement of education will be closely geared to meet the demand for manpower by the private sector.

The provision of education and health services has to be related to the voluntary family planning programmes which aim at the reduction of family size to a level which can be supported by the head of the family. This programme will aim at the expansion of family planning services and knowledge in order to reduce the population growth rate to 2.5 per cent by the end of the Third Plan.

The Third Plan also emphasizes the importance of private investment which will increase considerably. As the Head of the Government, I would like to confirm the definite Government's policy to promote private enterprises. The Government will neither establish new state enterprises, nor expand existing ones to compete with the private sector except those which will be of unquestionable benefit to national security or to preserve national sovereignty. It is the Government's policy to promote foreign investment which is still essential to national economic progress. As for investments in basic industries and those related to national economic independence, the Government will support Thai investors to permit them to play an increasing role in the management and control, and eventually take a majority interest in both investment and management. In the meantime, foreign investors will be given opportunities to earn a reasonable return on their investments as well as guarantee the right to repatriate their original invested capital.

In adhering to the aforementioned policy, Government development programmes will be undertaken with the view to promote private investment. Development policies and measures will be directed towards the solution of immediate problems faced by private enterprises, especially the acceleration of production for export and the promotion of a collective effort by the Thai people to form trade associations and agricultural institutions such as cooperatives and farmer groups to encourage them to play a greater role in trading and marketing.

In order to achieve these targets, development expenditures during the Third Plan period will total 100,275 million baht, 69,500 million of which will come from the Government budget, 10,445 million from the revenues of state enterprises and local authorities and 16,930 million from foreign loans and grants. During this plan period, the Government has to increase the amount of expenditures for the solution of immediate economic problems as well as for social development and defense. This situation makes it necessary for the Government to raise additional revenue. In this respect, the Government will pursue appropriate and effective fiscal policies concerning revenue from taxation and the improvement of tax administration and tax collection. Furthermore, the Government will seek financial assistance from abroad which includes making use of long-term loans for foreign exchange at a low rate of interest. The need for foreign financial assistance arises from the fact that investment in various development programmes and projects requires a substantial amount of financing which cannot be completely secured from taxation, but such programmes are necessary in order to make the country grow as rapidly as desired by the people. In requesting external assistance, negotiations will be conducted for both grants and loans. The foreign grants will be forthcoming mostly from the United States which has agreed to increase her contribution for financing the Third Plan. As regards foreign loans, the Government will commit itself to the use of loans within the limit set by law and only to finance those development projects for which the rate of return is high enough to cover investment costs. Moreover, loan negotiations have been conducted in such a manner as to get more favourable terms of payment for the country as witnessed by the fact that Denmark [illegible] the first country to extend loans to Thailand without interest and with a maximum repayment period of 25 years. Also Japan and West Germany are considering provision of grants and lower interest rate loans, as well as abolishing the condition that require the utilization of the loan for the payment of goods and services from the lending country. Assistance provided by these countries are symbols of goodwill and promote mutual understanding among friendly nations.

The Government will allocate development expenditures according to the priority of projects as embodied in the Plan and as consistent with the overall national development strategy in order to insure maximum efficiency. Development expenditures will be channelled into investments in a manner consistent with overall economic policy, and will be strictly supervised to conform with existing rules and regulations in order to generate economic and social progress for a greater proportion of the people. These economic and social development programmes and projects have already been carefully prepared and scrutinized by all Government agencies concerned. In addition, the Plan has also been studied and assessed by both Thai and foreign experts. Representatives of the private sector have also been invited to give their advice on some of the major development projects.

Cooperation between the Government and the private sector, a most important ingredient for development, will result in attaining the objectives laid down in the Third Plan. Consequently, it is projected that by 1976 rice production will be 14.47 million tons, maize 3.5 million tons, rubber 397,000 tons, kenaf 400,000 tons, tapioca 6.26 million tons, soy beans 300,000 tons and fisheries products 2.2 million tons.

New heavy industries such as chemical industries, iron smelting, oil refinery for export will be established along with industrial estates and export processing zones. Surveys for minerals will be conducted more extensively throughout the Kingdom. This will be carried out simultaneously with corresponding improvements in the transportation system. Telecommunication systems will be installed throughout the country, including telephone services and expansion of post and telegraph services. In the power sector, the installed generating capacity will be expanded to 2,469 megawatts which will produce 9,914 million kilowatt hours of electrical energy. It is the Government's policy to encourage industrial development by the gradual reduction of power rates. In social services, special attention will be given to the expansion of health services which include the expansion of hospital beds to 32,100, and to improvement in efficiency and equipment in hospitals throughout the country. In addition two new hospitals will be established, along with an increase of 370 first class health centres and 3,212 second class health centres. In public utilities, clean water will be provided for an additional 20,000 villages by constructing village water works systems, both by drilling for ground water and by improving natural ponds and lakes. In addition, the provincial waterworks system will be expanded to increase total production capacity to 660,000 cubic metres per day. The Government has also not been complacent in regard to the present housing shortage. The housing project for low income group will be implemented by the Government during the Plan period. For middle income people, private initiatives will be promoted to provide housing by the method of hire purchase at reasonable price.

What I have mentioned so far reflects the Government's strong desire to accelerate the development of our beloved country through definite programmes and policy. In implementing the Development Plan, as the Head of the Government, I have instructed all responsible Government agencies to carry out their various tasks with utmost energy and in accordance with the policies laid down in the National Economic and Social Development Plan. They should also be hard working and efficient, particularly in providing services to the public. I believe that social security and stability are the essential foundations of economic development. Without such security, economic development cannot take place due to the lack of confidence and incentive to undertake business activities on the part of the people. The Government has been trying its best to accelerate the pace of national development. However, the success of development, which is the cherished aim of every Thai citizen, still depends on the determination of the people to carry the torch of progress to the end.

Our land is richly endowed with agricultural, mineral and natural resources. The Thai people have the potential to contribute more effectively to increased productive capacity, if given proper training. At present His Majesty's Government is adhering to policies and measures which will direct the nation down the road to prosperity. With cooperation from my compatriots in the implementation of the Third Economic and Social Development Plan I believe we, as a nation, can overcome the obstacles and bring about prosperity for our country in years to come. To this end, may I ask my fellow citizens to be united in their efforts and with unfailing determination to press forwards so that our nation can reach a new, unprecedented and permanent level in economic development.

May the triple gems and all other universal holy powers bless all of you and bring to you health and prosperity and every success in your undertakings so that you may be an important power for our nation's development.

Summary of the Third National Economic and Social Development Plan

by

Renoo Suvarnsit

Secretary - General

Plenary Session of the National Economic Development Board

September 17, 1971

Your Excellency and Distinguished Executive Members,

The Draft of Thailand's Third Economic and Social Development Plan, which is being submitted for review today, covers the five year period from October 1, 1971 through September 30, 1976. The main objectives of this Draft Plan can be divided into three :

1. To present a clear picture of the existing economic and social conditions, including environmental changes in the economic, social and political conditions of the world which have a considerable impact on the Thai economy.

2. To present programmes which will accelerate the economic and social growth of Thailand together with continuing and new projects that will provide a firm foundation for future economic growth and raise living standards, reduce disparities in social justice and provide security for the people.

3. To present a basic strategy concerning immediate problems, particularly the balance of payments and to present corrective measures to solve these problems. This strategy includes both short and long-term measures which will be the basis for increased national production.

During the initial phase of the Second Plan the economy progressed rapidly, at a pace of about 8 per cent annually. In 1969, economic conditions changed considerably and exports were stagnant, resulting in a deficit in the balance of payments for the first time in ten years. International reserves declined in 1969 and 1970 and will decline further in 1971. Moreover, Government revenues have increased only slightly by 2.8 per cent in 1970, compared with the average growth rate of 11.2 per cent during the eight preceding years. Present indications are that no substantial improvement in the rate of increase of Government revenues will take place in the near future.

The targets of the majority of the development projects of various sectors under the Second Development Plan were achieved, except for certain projects in the fields of agriculture and transportation. The role of the private sector during the period of the Second Plan increased significantly. In summary, the progress of the economy achieved during the Second Plan period, even though a little short of the planned target, was at a reasonable pace. The four major factors contributing to economic instability in the second half of the Plan period were:

1. The fluctuation in world market prices of major Thai export commodities, particularly of rice and rubber.
2. The slow increase in Government revenue.
3. The decline in U.S. military spending in Thailand.
4. The decline in foreign investment.

For the first time in ten years, after a period of continual growth, the economy has entered a period of slower economic growth. Corrective measures adopted by the Government to alleviate the situation during this period include :

a. Reducing unnecessary imports :

On July 1, 1970 the Government adopted tax measures, including increased import duties, business and excise taxes to reduce the drain on foreign exchange reserves.

b. Promoting exports :

1. Expansion of the rice market.

The Government abolished the premium on the majority of rice grades in order to lower the cost of production so as to improve the competitiveness of Thai rice in the world market, and to increase returns to farmers. Furthermore, favourable long - term credit is being granted to importers of Thai rice so as to expand markets.

2. Acceleration of production and marketing distribution procedures :

This includes implementation of programmes to accelerate the production of cash crops of products with favourable markets, especially maize, soy beans, cattle and shrimp.

3. Reduction of production cost of industrial exports.

This is accomplished by means of reimbursing certain taxes which are included in the production costs of industrial exports.

Apart from short - term measures the Government has adopted a definite family planning policy which will have a direct effect during the Third Plan, resulting in a rapid expansion of the family planning services provided to major populated areas, especially low income groups to help raise per capita income so they are better able to support their families.

Timely implementation of the Government's measures, together with the response and flexibility of the private sector, have already resulted in some improvement in the economic situation. During the first six months of 1971 the value of exports increased by 10 per cent and the balance of payments ran a surplus of 320 million baht. However, in August 1971 the United States of America adopted monetary measures which are expected to force many countries to revalue their currencies, particularly Japan, a major trading partner of Thailand. The Japanese yen is now floating. Such conditions will have a direct effect on international trade. But these measures of the United State of America, aimed at stabilization of the United States dollar, will in the future result in a stronger and more stable international monetary system.

This will benefit both domestic and international trade, but especially our exports. This will enable Thailand to increase outputs. It is, therefore, the task of the National Economic Development Board to study and to follow - up these developments very closely.

The prevailing short run economic difficulties appear as major obstacles to sucessful implementation of the Third Plan, and measures adopted to overcome these difficulties must address themselves to the heart of the problems. The most significant obstacle to growth has been the increased competition in world markets for products which Thailand exports, resulting in a decline of both prices and quantity of exports. The fall in income of farmers and its consequent adverse repercussions on other sectors of the economy, including Government revenue, in the face of increasing heavy development and security expenditures requirements, makes it vital that certain short - term measures be adopted in the Third Plan to alleviate the situation. The proposed short run measures are:

1. Acceleration of Export Promotion : Acceleration of production and marketing of agricultural and industrial products both for domestic consumption and export through :

a. Diversification of agricultural production;

b. Reduction of industrial production costs, to improve the balance of trade and balance of payments positions on the one hand, and to alleviate sectoral imbalances through increased income and employment on the other.

2. Improvement of Government revenue collection.

Due to increasingly heavy development and security requirements, the Government needs to formulate new fiscal policies and measures to improve revenue collection. This will be undertaken with a view to bring about greater social justice, to eradicate tax loopholes, and to maximize utilization of revenues.

3. Filling the expenditure gap resulting from reduced U.S. military spending.

Military spending by the U.S. has declined markedly since the period 1966 - 1968, when 10,000 million baht was absorbed by the Thai economy. Considerable dislocation resulted in the construction and service industries after the phase - down of the spending. Measures to alleviate the problems include:

a. Construction

Reduction of the U.S. military spending has had a direct effect on the construction sector. However, construction will be increased to meet the demands of the public. The Government will undertake considerable construction programmes in provincial highways, community facilities, and low income housing.

b. Services

The over - capacity resulting from heavy U.S. spending will be redirected with Government encouragement towards tourism and transportation services.

4. Encouragement of investment from abroad through redirection of investment promotion policy in favour of:

a. Industries utilizing local labour and raw materials.
b. Industries capable of supporting the balance of payments position.
c. Industries located in rural areas.
d. Heavy industries with considerable local financial and administrative participation.

Changes that have occurred during the latter part of the Second Plan were not all economic in nature; social and political changes are also evident. Certain changes in social values and behaviour patterns from abroad have resulted in the younger generation discarding traditional cultural and social values. The Third Plan is, therefore, aimed at reviving valuable Thai customs and cultural standards. The unstable political and security situation of our neighbours will also reflect on the security of Thailand, requiring appropriate action with consequent effects on the availability of resources.

Overall Strategies

Apart form the short - term strategies described above, the Third Plan aims at restructuring the economic and social system to suit changing conditions. This cannot be achieved by any simple method, since a higher level of public expenditures will result in a higher aggregate demand, and this is likely to spill over into imports which will worsen our balance of payments position. On the other hand, severe restriction of public expenditures will not do the trick because aggregate demand will be so limited that the overall growth rate and the rate of employment will be adversely affected. The basic strategy for the Third Development Plan, therefore, is to maintain public expenditures at a level compatible with economic growth and stability.

Overall strategies of the Third Plan can be divided into six major categories as follows:

1. To restructure the economic system and to promote economic growth.
2. To maintain economic stability.
3. To promote economic growth in rural areas and to reduce the income disparity gap.
4. To improve social justice.
5. To develop manpower resources and to create employment.
6. To promote the private sector's role in economic development.

The strategy for each category will be described in more details.

1. Restructuring of the economy and expansion of economic activities.

One of the main targets of the Third Development Plan is to increase Gross Domestic Product (GDP) at an annual rate of 7 per cent. This is slightly lower than the rate of increase of GDP during the Second Development Plan period which averaged 7.2 per cent. Since the rate of population growth will be reduced from the present rate to approximately about 2.5 per cent in 1976, per capita income in 1976 will be increasing at a rate of about 4.5 per cent, compared with the 4.0 per cent achieved during the Second Plan period.

The basic strategy for achieving this production growth target is to increase agricultural production at an annual average rate of 5.1 per cent per year, as compared with the rate of 4.1per cent achieved during the Second Plan period. This strategy is compatible with the goal to increase the income of the rural population. Government measures in this field include accelerated production programmes for certain agricultural products, crop diversification programmes and programmes to improve marketing. For major existing agricultural products, special emphasis will be given to the improvement of yield per rai, expansion of foreign markets and quality improvement. As for industrial development, high priority industries will be promoted.

Economic Stability

The Third Plan aims at maintaining international reserves at a suitable level. The target for export growth is a rate of 7.0 per cent while the rate of import growth will be kept to an average of 2.8 per cent per year.

The following package programmes are required if the above targets are to be achieved:

a. Export Promotion.

1. In the short run, the production costs of our traditional export products will be reduced through tax measures. This will make Thai products more competitive in foreign markets. Another short - term measure is to strengthen the Government's efforts in seeking wider markets for our products.

2. Private investment in export infra-structure which can help reduce transport and handling costs such as warehouses, storage, handling equipment, and seaports chiefly for exports of grains or mineral products will be promoted. The role of Government in this field will be to improve port and handling facilities including containerization. Furthermore, Government policies concerning the second deep - sea port, the promotion of air and sea transport services and the transport cost of export products will be formulated in the Third Plan. Industrial estates and an export processing zone will be set up to promote industrial exports.

3. Marketing studies will be expanded, while any regulation, rule or law which hinders export growth will be eliminated.

b. Import Plan.

1. Domestic production to substitute for imported raw materials.

Unlike many measures, this strategic step is capable of (1) reducing imports while (2) increasing domestic income and employment at the same time. Within the Third Plan period, domestic production of cotton, tobacco, paper and pulp, iron ores, and dairy products will receive high priority. However, this approach requires a considerable amount of time to be successful. In the meantime importing cotton and tobacco under a PL 480 programme is one possible way to ameliorate the balance of payments deficit in the next two or three years ahead.

2. Better utilization of imported capital goods.

Imports can be saved by promoting better utilization of available capital goods. Furthermore, more selective industrial promotion in favour of high priority industries, including labour intensive industries, will also save a considerable amount of the country's foreign exchange. Effective implementation of this measure requires a definite Government policy on each major industry similar to the recently adopted policy on the automobile and spare parts industry.

3. Reduction of consumers' goods imports.

Consumption of domestically produced goods of fair price and quality will be encouraged through such measures as Government procurement and appropriate tariff measures. Import restrictions will be used only in cases which are unavoidable and apply to non-essential products. Furthermore, the improvement of the tax structure will reduce the purchasing power of the rich and thus help reduce non-essential imports.

c. Measures concerning services account.

1. Service receipts

Insurance, air services, and shipping will be gradually promoted, starting by laying a firm foundation for future expansion. Services for tourists will be improved by greater cooperation with the private sector.

2. Service payments.

Services payments, including foreign travel by Thai citizens, will be reduced through tax increases.

Apart from external stability, domestic stability and the balance between supply and demand for goods and services are necessary conditions for rapid economic growth. Therefore, another major target of the Third Plan is to maintain the growth of money supply at a rate compatible with internal and external economic stability. Furthermore, monetary expansion will be maintained at a high enough rate to promote economic growth, while not having an adverse effect on the price level.

In order to achieve the above goal, total development expenditures are set at about 100,000 million baht, of which 69,500 million baht will come from the budget, 15,845 million baht will come from state enterprises and local government, and 16,930 million baht from foreign loans and grants. Since economic, social and defence expenditures are likely to be higher while revenues appear to be increasing at a lower rate, the Government needs to find ways and means to increase tax revenues. Furthermore, improved control and efficiency of Government operations are required so that the goals of the Plan can be achieved.

Priorities of Government expenditures can be listed as follows:

1. Acceleration of production of goods and services, particularly those for export.
2. Development of education, human resources and technology.
3. Better utilization of existing construction facilities.
4. Regional, urban and community development.
5. Investment in support of economic preparedness.

Promotion of economic growth in the rural areas and reduction of income disparities.

The main targets are to improve the standard of living of the rural population while reducing income disparities. Economic infra-structure, in such fields as agricultural and regional development, which will help provide a basis for further reductions in the income gap, will be given emphasis. Important measures include:

a. Acceleration of agricultural production at an annual growth rate of 5.1 per cent. Agricultural development expenditures will be increased at the rate of 8 - 10 per cent per year.

b. Programmes of small investment in the rural areas such as ditches and dikes, feeder roads and village development projects will be increased as a means to provide more employment opportunities.

c. The reduction of the population growth rate through the expansion of the family planning programme.

d. The creation of regional growth centres which will create more employment opportunitie for surplus agricultural labour.

e. Agro -industries located in rural areas will be encouraged.

Social justice

The basis target is to provide Government social services to the public in a more equitable manner. This will reduce the differences in the standard of living among various regions and among different classes of people in the urban area. Important measures include:

a. Improvement of the standard of living of the urban population.

Low - cost housing and water supply, which represent the two most serious problems at present, will be expanded. Furthermore, measures aimed at alleviating such problems as traffic congestion and sewerage disposal will be implemented. The price of urban land will be kept at a reasonable level through such measures as taxation.

b. Improvement of the standard of living of the rural population:

This will be achieved through such measures as the construction of feeder roads, expansion of rural electricity projects, and improvement of Government health and education services. The community development programme will be expanded to cover the whole Kingdom. More autonomy will be granted to local authorities. The efficiency of the Accelerated Rural Development programme will be improved. Financial intermediates will be encouraged to provide greater services in rural areas. Furthermore, regional economic planning which has already been started in the North and Northeast will be expanded to cover the South and eventually other regions of the country.

c. Manpower and employment development.

Major targets in the manpower and employment development process are as follows:—

1. To emphasize the importance of elementary and vocational education and to improve the quality of all levels of education.

2. To lower the rate of population growth to 2.5 per cent by 1976.

3. To provide employment for an additional 2.6 million workers, so that the unemployment rate in urban areas does not exceed 3.2 per cent and the problem of unskilled labour in the cities and towns is minimized.

This is a very important problem, as the present rural manpower accounts for 75 per cent of the total labour force. Measures to overcome this problem include :

1. To emphasize the importance of elementary and vocational education.

During the First and Second Plans, the Government extended widely compulsory education. However, since population increased very rapidly, services in this area are still inadequate. In the Third Plan, the Government proposes to extend elementary education to all parts of the country, including the improvement of quality and the extension of compulsory education to seventh grade. In addition, since the Government has a basic policy of increasing employment and raising the level of income, it will accelerate the expansion and improvement of vocational education, especially for agriculture and industry. The Government will also support the activities of the private sector in achieving these objectives.

2. To improve the quality of education at all levels :

In the Third Plan, education development guidelines correspond to the demand for labour at all levels; the Government, therefore, has adopted a programme to improve the overall quality of education, especially at the vocational and university levels. This is to produce those categories of highly qualified manpower which are in demand in the labour market. Since the role of the private sector will expand rapidly, development guidelines to improve the quality of this educational system will take careful account of the requirements for labour in the private sector.

3. Family planning: During the Second Plan period, many interested families in the rural areas have not been able to receive family planning services. Currently, there are many families who have taken these precautions at their own expenses. It is, therefore, essential that the family planning project should be extended to the rural areas by providing family planning services through the health stations. In this way the target of a reduced rate of population growth can be achieved.

4. Employment opportunities can be improved by supporting labour intensive industries, both in the private and public sectors. The purchase of unnecessary machinery should not be encouraged if labour can be substituted.

5. Extension of professional training, especially for illiterate youths, to prepare for entrance into the labour force.

6. Training courses will be provided in agriculture and other subjects which correspond to the needs of the rural areas.

7. Mobilization of manpower in the rural areas by encouraging business activities and extending employment services to the provinces. The Government will also give special privileges and better incentives to civil servants working in the rural areas.

The role of the private sector in the development of the country.

The major policy in this respect is to emphasize private investment. All Government projects will be directed in accordance with private investment needs. Policies and measures in all sectors will be directed to overcome the obstacles and problems facing private businesses, particularly in accelerating export production which is now the major weakness in the economic development process.

In order to achieve these objectives, important measures in the Third Plan are :

a. To encourage business groupings especially in the major sectors such as exports, tourism, financial institutions, etc., so that production and marketing can operate efficiently. Fair competition should be encouraged by standardizing industrial products and exports so that businesses can operate on a stable basis.

b. To encourage close cooperation and discussion between the Government and representatives of the private sector professional groups especially in such areas as industry, commerce and tourism.

c. To encourage private investment which directly contributes to economic development. This includes reduction of luxury and consumption expenditures.

d. To promote foreign investments which will make a significant contribution to the economic growth of Thailand and to promote joint ventures between Thai and foreign entrepreneurs in order for the Thai investors to gain sufficient experience and technical know-how to play a more important role in the country's business and industrial development. However, the Government must formulate a programme for the protection of basic industry and keep it from direct or indirect control of the foreign investors.

e. To develop better planning for determining realistic policies for state enterprises. The state enterprises should not compete with private enterprises.

f. To improve the operational methods of various Governmental departments so that the private investor will not be hampered by organizational limitations or ineffective administration of departments. Moreover, rationalization and reform of the departmental and bureaucratic procedures are necessary.

By moving on the development path described above, the economic and social system of Thailand will advance towards more stability and equality, both serving to contribute to greater national security.

Moreover, the implementation of the Third Plan will strengthen the economic foundation for long-run sustained expansion. If it is realized that the public interest is served by development, and if the policies of the Third Plan are followed, a net real economic gain will be achieved because available natural resources and manpower are able to move easily into more productive sectors.

The progress of the economic and social system and its stability outlined in the Plan are conditioned by the following factors :

a. Policy and strategy as formulated in the Third Plan must be followed. At the same time with the changing economic, social, and political environment modifications in the plan formulation may be required. To do this the annual plan should cover not only the projects and budgets, but also evaluate performance under the Plan. The annual plans are designed to show the progress and shortcoming of plan implementation and thus permit the Government to adjust its economic policies in appropriate ways.

b. The Government must encourage the private sector to contribute more effectively to the growth and stability of Thailand's economic and social system. Private activities, however, must be kept within limits compatible with the general public interest.

c. The Government must find effective ways to overcome various organizational weaknesses and administrative inefficiencies. The existing bureaucratic system must be improved and adapted to the economic and social realities of the country.

CHAPTER I

SUMMARY OF THE THIRD NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PLAN

Development planning in Thailand has continuously been improved since the promulgation of the First National Plan in 1961. The First Plan dealt exclusively with public sector expenditures. The scope of the Second Plan was expanded to include such new areas as planning for manpower and private sector development, while strengthening the public sector expenditure programme in such a way that the Plan reflected public investment requirements in a clearer and more effective manner. In the Third Plan, improvements in both the methodology and the coverage of the Plan are as follows :

1. Overall strategies were set first, followed by sectoral strategies and programmes.
2. Economic and social projects are brought more closely together in a systematic manner. For example, projects to increase farm productivity are considered jointly with projects to develop the rural social system, and industrial development projects with urbanization projects. In this manner, maximum benefits can be achieved through implementation of mutually supporting projects.
3. Regional development, including regional and changwat planning, is given greater emphasis.
4. Projects in the National Preparedness Plan are included so as to provide support for greater national security.
5. For the first time, policies concerning population and employment are formulated.
6. Private sector development planning is expanded so as to promote the role of the private sector in Thailand's economic development.

The Third National Development Plan commences at the time when economic conditions, for the first time in ten years, are not too bright. Furthermore, improvement of social and political conditions face many obstacles. These problems have been caused mainly by the changes in exogenous factors originating from both domestic and international sources. Major changes which adversely affected Thailand's development are in the demand for and prices of major Thai products notably rice and rubber, and the changes in the monetary policies of highly developed countries affecting the value of many currencies, notably the U.S. dollar, the Japanese yen and German mark. With regard to the social aspect, certain changes of social values and behaviour patterns of the younger generation and intellectuals have resulted in widening of the generation gap. The evolution of the social system in many countries, including Thailand, indicates that a considerable amount of time is required before complete adjustment can be made. In the field of international relations periodic crises, particularly in our neighbour countries, require Thailand to mobilize more economic resources for security purposes during the Third Plan period. The Third Plan strategy, therefore, aims at presenting measures to overcome these problems, while at the same time accelerating the growth of the high priority sectors in order to construct a firm foundation for future economic growth.

Economic Conditions during the Second Plan Period

Economic progress during the first part of the Second Plan maintained its pace due to the rapid expansion of both agricultural and industrial production, Increases in foreign investment and U.S. expenditures in Thailand contributed to the high growth rate achieved in this period, In the latter part of the Plan period, however, the rate of economic growth has slowed down after ten years of rapid expansion.

Major factors contributing to the decline of the growth rate have been : the changes in the demand for and price of major Thai export products, notably rice, rubber and tin; and the decline in U.S spending and foreign investment in Thailand. Table 1 - 1 indicates that these factors are the ones which expanded very rapidly during the first part of the Second Plan. The changes in these factors affected the Thai economy in many ways, including the level of national income and expenditure, foreign exchange reserves, private investment, and Government revenue and expenditure.

This economic slowdown not only gave rise to economic problems but also to social problems. For example, the decline in agricultural income particularly affected the majority of the people living in rural areas. Furthermore, the high rate of population growth makes it difficult for the Government to provide sufficient social services and, more importantly, leaves little room for the poor to improve their standard of living.

TABLE 1 - 1
Summary of the Economic Condition
During the Second Development Plan

	1967 - 69	1970 - 71	1967 - 71
1. Change in major factors			
1.1 Market demand			
a. Rice			
Quantity of exports (average : million baht	1.2	1.1	1.2
Export price (average : baht/ton)	3,194	2,095	2,754
Export value (average : mil. baht)	3,791	2,252	3,175
b. Rubber			
Quantity of exports (average : thous. ton)	247	278	259
Export price (average : baht/ton)	8,138	7,500	7,896
Export value (average : mil. baht)	2,018	2,099	2,050
1.2 U.S. expenditure in Thailand			
Total (million baht)	13,657	7,412	21,069
Annual average	1,152	998	1,090
2. Impact of major changes on domestic economy			
2.1 GDP growth rate (constant prices)	8.0	6.0	7.2
2.2 Gross domestic expenditure growth rate (current prices)	8.9	4.2	7.0
2.3 Government revenue growth rate	13.5	3.8	9.6
2.4 Government expenditure growth rate	15.1	8.5	12.4
2.5 Private investment growth rate	16.0	2.0	10.4
2.6 Change in international reserves (million baht)	+ 628	— 3,972	— 3,344

The Role of Government During the Second Plan

The First Part of the Second Plan (1967 - 1969) : During this period of rapid economic growth, the Government adopted two major measures as follows :

1. It maintained economic stability through fiscal measures. Despite the fact that substantial foreign reserves accumulated during this period, monetary expansion was kept within limits compatible with price stability.

2. The rapid increase in Government revenue was used to implement infra - structure projects in such fields as communications and transportation, electric power, and public utilities. These projects proved to be of great benefit in that they provide the basic foundation upon which measures to rectify the present economic problems can be based.

The Latter Part of the Second Plan (1970 - 1971) : Following the changes in exogenous factors described above, the Government has taken certain steps to correct the situation :

1. Measures to Reduce Unessential Imports : On July 1, 1970, the Government adopted tax measures, including increased import duties, business and excise taxes, to reduce imports and hence the drain on foreign exchange reserves.

2. Export Promotion :

A. Expansion of the Rice Market. The premium levied on the majority of grades of rice was abolished so as to improve the competitiveness of Thai rice in the world market and to increase the returns to farmers. Furthermore, favourable long-term credit is being granted to importers of Thai rice so as to expand markets.

B. Expansion of the Maize Market. Trade agreements with Taiwan and Japan have been negotiated to provide regular markets for maize.

C. Reduction of Production Costs of industrial products through reimbursment of certain taxes which are included in the production costs of industrial exports.

Apart from these short-term measures, the Government has adopted a definite population policy which will have a direct effect during the Third Plan resulting in a rapid expansion of the family planning services available in areas of major population concentration, particularly for low income families. This programme will help the poor to maintain a family size compatible with their income earning capability.

Results of the Government Short - Term Measures : These timely short - term Government measures, together with the flexibility of the private sector, have resulted in some improvement in the economic situation towards the end of the Second Plan. However, since the price of rice has plummeted, the value of rice exports was still at a relatively low level despite a sizable increase in quantity exported due to the success of the Government's measures. Apart from rice, the value of many of the promoted export products, in particular maize, kenaf and industrial products, increased markedly, to more than compensate for the revenue loss from rice and rubber exports. As a result, total value of exports during the first half of 1971 registered an increase of about 10 per cent as against the decline of 0.1 per cent during the same period last year. At the same time the value of imports, which in the past had increased at an average rate of 5 per cent, registered a decline of about 6 per cent. The balance of payments for the first half of 1971 ran a surplus of about 320 million baht (exclusive of SDR's allocation of about 280 million baht) as against a deficit of 660 million baht for the same period last year.

Overall Development Strategy

The major objective of the Third Plan is to restructure the economic and social system to suit the changing economic situation. This cannot be achieved by the simple method of " pump - priming ", since a higher level of public expenditure will result in a higher level of aggregate demand, and thus is likely to spill over into imports which will worsen the balance of payments position. On the other hand, severe restriction of public expenditure will result in a level of aggregate demand so low that the overall growth rate and the rate of employment will be adversely affected. The basic strategy for the Third Plan, therefore, is to maintain public expenditure at a level compatible with economic growth and stability. To achieve the major objectives, close cooperation between the public and private sectors is required.

Major objectives of the Third Plan are :

1. to restructure the economic system and to promote economic growth ;
2. to maintain a reasonable level of foreign exchange reserves and price stability and to overcome immediate problems, particularly the decline in the overall economic growth rate ;
3. to promote economic growth in the rural areas and to reduce income disparities ;
4. to promote social justice ;
5. to develop manpower resources and to create employment ;
6. to foster the role of the private sector in economic development.

TABLE 1 - 2

GROSS DOMESTIC PRODUCT

(Constant 1962 prices)

(billion baht)

	1971 (Estimate)		1976 (Target)		Average Annual Growth rate	
	Value	%	Value	%	1967 - 71	1972 - 76
1. Agriculture	37.3	29.5	47.8	26.8	4.1	5.1
1.1 Crop	26.0	20.5	32.5	18.2	2.7	4.6
1.2 Livestock	3.9	3.1	4.7	2.6	2.7	3.4
1.3 Fishery	4.3	3.4	6.9	3.9	17.3	10.0
1.4 Forestry	3.1	2.5	3.7	2.1	6.5	3.4
2. Mining and Quarrying	2.1	1.7	2.8	1.6	8.1	6.0
3. Industry	21.4	16.9	31.4	17.6	9.2	8.0
3.1 Traditional Industry	6.6	5.2	8.3	4.6	5.1	4.8
3.2 New Industry	14.8	11.7	23.1	13.0	11.4	9.2
4. Construction	8.4	6.6	11.7	6.6	8.4	6.5
5. Electricity and Water Supply	1.9	1.5	3.9	2.2	20.7	15.0
6. Communications and Transportation	8.6	6.8	11.5	6.5	7.5	6.0
7. Trade	20.5	16.2	29.3	16.4	7.7	7.0
8. Banking, Insurance and Real Estate	5.1	4.1	11.0	6.2	14.4	15.0
9. Ownership of Dwellings	2.4	1.9	2.7	1.5	4.1	2.5
10. Public Administration and Defence	5.7	4.5	7.6	4.3	10.0	6.0
11. Services	13.0	10.3	18.5	10.3	8.8	7.0
GDP	126.4	100.0	178.2	100.0	7.2	7.0

1. Restructuring of the Economy and Expansion of National Income and Production :

Strategy

A. To restructure the production sectors so as to suit the demand pattern.

B. To increase the efficiency of production for major products, to accelerate the production of goods which have strong demand and good prices, and to reduce the production cost of domestic goods so as to increase the competitiveness of Thai products in world markets.

C. Improvement of the internal marketing system to increase the income of producers through maintaining sufficient demand and fair prices.

Targets

A. To increase GDP at an annual average rate of 7 per cent per year. Since the rate of population growth will be reduced from the present rate of approximately 3.0 per cent to 2.5 per cent in 1976, per capita income in 1976 will be increasing by about 4.5 per cent, compared with the average rate of 4.0 per cent achieved during the Second Plan period.

B. To increase production in accord with the following sectoral targets :

Agriculture : The average annual growth rate is targetted at 5.1 per cent as compared with 4.1 per cent achieved during the Second Plan. This target will be achieved through the special emphasis given to agricultural development projects.

Industry and Mining : The growth rates are expected to be 8 per cent for industry and 6 per cent for mining. These growth rates are considerably lower than those achieved during the Second Plan. The lower growth rate is primarily due to the current slackening of demand, particularly during the first part of the Third Plan.

Trade : The growth rate is expected to be around 7 per cent which is somewhat lower than the Second Plan's growth rate.

Services : Due to the excess capacity of the service sector the growth rate in the Third Plan was forecast to be much lower than during the Second Plan. However, since there is much room for the expansion of the tourism industry, the growth rate is set at 7 per cent as compared with 8.8 per cent during the Second Plan.

Others : The growth rate of construction, communication and transportation are expected to be lower in the Third Plan than in the Second Plan. However, if certain large scale industries were constructed within the period of the Third Plan, the growth rate of construction could be higher than expected. The sector which is expected to grow at a higher rate in the Third Plan, due to the increasingly important role of the private sector, is banking, insurance and real estate.

The sectoral targets described above will allow the economy to grow on a more balanced basis.

2. Maintaining Economic Stability :

Economic stability is a necessary condition for balanced economic growth. The Government's objective is to maintain economic stability in the Third Plan through the correction of the present economic problems, notably the economic slowdown and the maintenance of international reserves at a suitable level.

Correcting the Current Economic Situation : Measures adopted to overcome immediate economic problems must address themselves to the three major areas which are the heart of the problem, namely, the fluctuation of the demand and price for Thailand's exports, the decline in the level of U.S. spending and the decline of foreign direct investment in Thailand. During the Third Plan period, these three main problem areas will be dealt with simultaneously in order to restore public confidence. Important measures to be taken can be described as follows :

A. Acceleration of Export Promotion : Acceleration of production and marketing of agricultural and industrial products will be undertaken both for domestic consumption and export through :

1) diversification of agricultural production,
2) reduction of industrial production costs

so as to improve the balance of trade and balance of payment positions on the one hand, and to alleviate sectoral imbalance through increased income and employment in agriculture and manufacturing on the other.

B. Filling the Expenditure Gap from Reduced U.S. Military Spending : Military spending by the U.S. has declined markedly since the period 1966 - 1968 when 10,000 million baht was absorbed by the Thai economy. The phase-down has resulted in considerable dislocation in the construction and service industries. Measures to alleviate the problems include :

1) Construction: To stimulate construction, the Government will undertake considerable construction programmes in provincial highways, community facilities, and low income housing.

2) Services: The overcapacity resulting from reduced U.S. spending will be redirected, with Government encouragement, towards tourism and transportation services.

C. Encouragement of Investment from Abroad : Investment promotion policy will be redirected in favour of :

1) Industries utilizing local labour and raw materials.
2) Industries capable of supporting the balance of payments.
3) Industries located in rural areas.
4) Heavy industries with considerable local financial and administrative participation.

Maintaining a Suitable Level of International Reserves

The restructuring of the economy, as described above, requires a considerable amount of both time and resources. During the period of adjustment, a drawdown of international reserves will be extremely hard to avoid if economic growth is to be kept at a rate high enough to create employment opportunities for the growing labour force. However, international reserves will be maintained at a suitable level through fiscal measures aimed at keeping aggregate demand within appropriate limits.

Targets. The Third Plan aims at maintaining international reserves at a suitable level. The target for the export growth rate is 7.0 per cent per year, while the rate of import growth will be kept to an average of 2.8 per cent per year.

Foreign Trade Measures. The following package of programmes, covering measures for exports, imports, and service accounts is required if the above targets are to be achieved.

A. Export Promotion.

1) In the short run, the production costs of traditional export products will be reduced through tax measures. This will make Thai products more competitive in foreign markets. Another short - term measure is to improve the Government's efforts to develop new export markets.

2) Private investment in export infra-structure, which can help reduce transport and handling costs such as warehousing, storage, handling equipment, and port facilities chiefly for exports of grains and mineral products, will be promoted. The role of the Government in this field will be to improve port and handling facilities, including containerization. Government policies concerning the second deep-sea port, the promotion of air and sea transport services, and reduction of the transport cost of exports will be formulated during the Third Plan. Industrial estates and export processing zones will be established to support industrial production and export.

3) Marketing studies will be expanded. Regulations, rules and laws which hinder exporting will be eliminated.

B. Import Plan

1) Domestic Production to Substitute for Imported Raw Materials :

Unlike many others, this strategic measure is capable of reducing imports while increasing domestic income and employment at the same time. Within the Third Plan period domestic production of cotton, tobacco, paper and pulp, iron ore, and dairy products will receive high priority. However, this approach requires a considerable amount of time to be successful. In the interim, financing cotton and tobacco imports under a PL 480 programme is one way to ameliorate the balance of payments deficit.

2) Better Utilization of Imported Capital Goods : Imports can be reduced by promoting better utilization of available capital goods. Industrial promotion will be more selective in favour of high priority industries, with particular emphasis given to labour intensive industries and industries which will save foreign exchange. Effective implementation of these measures requires a definite Government policy for each major industry, similar to the recently adopted policy on the automobile and spare parts industry.

3) Reduction of Consumer Goods Imports: Consumption of domestically produced goods, fairly priced and of satisfactory quality, will be encouraged through such measures as Government procurement and appropriate tariff regulations. Import restriction will be used only if absolutely necessary and would not cover essential goods. Furthermore, improvement of the tax structure will reduce the purchasing power of the rich and help reduce non-essential imports.

C. Measures Concerning Service Account.

1) Services Receipts : Insurance, air service and shipping will be gradually promoted. Services for tourists will be improved by greater cooperation with the private sector.

2) Services Payments : Services payments, including foreign travel by Thai citizens, will be reduced through tax increases.

Fiscal and Monetary Measures

Apart from external stability, domestic stability and balance between supply and demand of goods and services are necessary conditions for rapid economic growth. Therefore, another major target of the Third Plan is to maintain the growth of money supply at a rate compatible with internal and external economic stability. The rate of monetary expansion will be kept high enough to promote economic growth without having an adverse affect on the price level.

Target

The target is to maintain price stability by keeping the growth rate of money supply at no more than 10 per cent per year, a rate which is compatible with the goals of economic growth and stability.

A. Development Expenditures :

In order to achieve the target, development expenditures during the Third Plan period will total 100,275 million baht, 69,500 million baht of which will come from the Government budget, 16,930 million baht from foreign loans and grants, and 13,845 million baht from the revenues of state enterprises and local authorities.

TABLE 1-3

Development Expenditures Classified by Source

		(million baht)
Development Expenditures	**Total**	100,275
Financed by:		
1. Budget		69,500
a. Revenue Surplus		35,265
b. Domestic Borrowing		34,235
2. Revenue of State Enterprises and Local Authorities		13,845
3. Foreign Loans		11,930
4. Foreign Grants		5,000

B. Financing Development Expenditures.

Development expenditures will be financed in such a way that the rate of monetary expansion will be no more than 10 per cent per year.

1) Government Revenue. During the Third Plan period, the tax structure and administration will be improved with the objective of raising additional revenues to compensate for the loss from reduced foreign trade taxes on the one hand, and to increase the general level of Government revenues on the other. Total revenues from taxation and other revenue sources during the Third Plan, including tax improvements, will amount to about 127,400 million baht. The tax improvement programme will be designed in such a way that social justice will be enhanced while unnecessary spending on imports will be curbed in order to reduce the drain on foreign exchange reserves. Apart from revenues from taxation, the revenues from Government organizations, particularly state enterprises, will be mobilized to finance activities which are beneficial to the overall economy.

2) Domestic Borrowing : Domestic borrowing will aim at the minimization of interest payment on debt, while maintaining price stability. In order to achieve this aim, the Government will diversify the sources of borrowing and will keep the amount of borrowing from the Bank of Thailand within reasonable limits. Domestic borrowing during the Third Plan period will amount to 34,235 million baht.

3) Revenue from State Enterprises and Local Authorities : State enterprises will be encouraged to spend only on useful projects. Furthermore, state enterprises' projects which are suitable for financing through foreign loans will be encouraged to borrow from abroad, which will help strengthen the financial condition of state enterprises and, more importantly, will enable them to contribute more to the Government budget. As regards the revenue of local authorities, the problems of expanding the scope of the authorities to tax will be considered so that transfers from the budget can be reduced.

4) Foreign Loans : In order to finance the development programme 11,930 million baht of foreign loans is required, 4,770 million baht of which will be borrowings by Government agencies while 7,160 million baht will be on a Government guarantee basis. The Government will give greater emphasis to the preparation of projects to be financed by foreign loans, including feasibility studies in order that the delay in loan negotiations can be reduced.

5) Foreign Grants : Priority will be given to education and agriculture. Preliminary estimates indicate that foreign grants required during the Third Plan period will amount to 5,000 million baht.

C. Allocation of Development Expenditure :

Since economic, social and defense expenditures are likely to be at a higher level, while revenue appears to be increasing at a lower rate than in the past, the Government needs to find ways and means to increase tax revenue. Furthermore, better control and improved efficiency of Government operations are required so that the goals of the Plan can be achieved.

Priorities of Government expenditure can be listed as follows :

1) Acceleration of production of goods and services, particularly those for exports.
2) Development of education, human resources and technology.
3) Better utilization of existing construction facilities.
4) Regional, urban and community development.
5) Investment in support of economic preparedness.

TABLE 1 - 4

Development Expenditures Classified by Economic and Social Sectors

(million baht)

	Budget	Foreign Loans	Foreign Grants	Self-financed from state enterprises & local authorities	Total
Agriculture & Irrigation	11,620.0	1,165.0	850.0	60.0	13,695.0
Industry and Mining	510.0	—	200.0	770.0	1,480.0
Commerce and Services	170.0	—	—	700.0	870.0
Communication and Transport	10,900.0[1]	4,945.0	450.0	3,180.0[2]	19,475.0
Power	1,970.0	2,655.0	150.0	3,100.0	7,875.0
Sub - Total	25,170.0	8,765.0	1,650.0	7,810.0	43,395.0
Social Development	2,200.0	—	350.0	—	2,550.0
Urban and Rural Development	5,430.0	2,505.0	1,100.0	6,035.0[3]	15,080.0
Health	5,500.0	—	840.0	—	6,340.0
Education	31,200.0	660.0	1,050.0	—	32,910.0
Sub - Total	44,330.0	3,165.0	3,350.0	6,035.0	56,880.0
Total	69,500.0	11,930.0	5,000.0	13,845.0	100,275.0

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[1] excluding reimbursement of foreign financed highways projects, of about 1,500 million baht which is included in the "foreign loans" column.

[2] including self - financed project of the Department of Post and Telegraph, about 205 million baht.

[3] including self - financed project of the Water Works Authority, about 220 million baht.

3. Promotion of Economic Growth in the Rural Areas and Reduction of Income Disparities.

Strategy :

Promotion of economic growth in the rural areas was one of the major objectives of the Second Plan, during which period the Government allocated more resources to building up the economic and social foundation of development including the transportation system, irrigation, electricity, health services and education. Furthermore, many activities which directly support rural development, such as community development projects and accelerated rural development projects, have been greatly expanded during the Second Plan. During the Third Plan period, the Government, through regional and changwat planning, will concentrate more on projects which will utilize existing infra-structure facilities in order to benefit directly the people in the rural areas.

Targets :

A. To improve the standard of living of the rural population while reducing income disparities.

B. To provide a basis for reduction of the gaps between the standard of living and income.

Measures :

A. Acceleration of agricultural production at an annual growth rate of 5.1 per cent. Agricultural development expenditure will be increased at the rate of 10 per cent per year.

B. Small investment programmes in the rural areas, such as ditches and dikes, feeder roads and village development projects will be increased as a means to provide more employment opportunities.

C. The reduction of the population growth rate through the expansion of the family planning programme.

D. Agro-industries located in rural areas will be encouraged.

4. Promotion of Social Justice.

Strategy :

Despite the fact that the Government has built up considerable social infra-structure during the Second Plan period, the limited amount of public resources prevented the Government from balancing the supply of social services with the demand for these services. This resulted in wider gaps not only among people living in different regions, but also among people living in the urban areas. The Third Plan therefore aims at the expansion of social services in order that they will reach a greater proportion of poor people, both in the remote and in the urban areas. The greater diversification of social services will shift Government construction from concentrating on big projects and on specific localities to cover wider areas which will generate income and employment in a more equitable manner.

Targets :

A. To diversify Government social services to reach more people ;

B. To reduce the standard of living gap.

Measures :

A. Improvement of the standard of living of urban population : The uneven distribution of Government services affected the poor much more than the rich. In this respect, the poor who live in urban areas have been suffering no less than their counterparts in the rural areas. Therefore, the Government will give high priority to the expansion of low cost housing and water supply which represent the most serious problems in urban areas at present. Furthermore, measures aimed at alleviating such problems as mass transportation, traffic congestion and sewerage disposal will be implemented in the Third Plan period.

B. Improvement of the Standard of Living of Rural Population : This will be achieved through such measures as the construction of feeder roads, the rural electrification project and improvement in the Government health and education services. For the expansion of health and education services, priority will be given to areas where no such services are now available. Furthermore, improvement of these basic services will be concentrated in areas where the existing facilities are below national standard. Educational development, which is the basis for future development, will receive high priority in the allocation of development expenditures. Educational development expenditure is expected to increase at an annual average rate of 10 per cent.

5. Manpower and Employment Development.

Strategy :

Family planning programmes to reduce the population growth rate will be implemented. Compulsory education will be expanded to cope with the growing population. For youth outside the normal education channel, out - of - school training programmes especially designed to suit the specific professional requirements of each locality will be implemented. The training of technocrats for the fields in which manpower shortages are apparent, such as scientists, engineers, teachers, doctors, and nurses will be accelerated. In fields in which partial oversupply has developed, emphasis will be given to quality improvement while improving incentives to transfer manpower from surplus areas to deficit areas, in particular remote areas. Employment policy will be formulated in the Third Plan with the aim of accelerating the increase of employment opportunities.

Targets :

A. To reduce the population growth rate from approximately 3.0 per cent per annum at present to 2.5 per cent per annum in 1976.

B. To provide 2.6 million job opportunities and to maintain urban unemployment at a rate not greater than 3.2 per cent.

C. To reduce underemployment in rural areas. This is the major manpower problem since 75 per cent of the labour force is located in such areas.

Measures :

A. Family Planning : During the Second Plan period many interested families in the rural areas have not been able to receive family planning services. Moreover, there are many families who currently have taken these precautions at their own expense. It is, therefore, essential that the family planning project be extended to rural areas by providing family planning services through the health stations. In this way, the objective of a reduced rate of population growth can be achieved.

B. Employment opportunities : These can be encouraged by supporting labour intensive industries, both in the private and public sectors. The purchase of unnecessary machinery should not be encouraged if substitution of labour is possible.

C. Extension of professional training will be carried out, especially for out-of-school youths to prepare them for entrance into the labour force.

D. Support training courses will be provided, particularly in agriculture and other areas corresponding to the needs of the economy.

E. Mobilization of manpower in the rural areas will be promoted by encouraging business activities and extending employment services to the provinces. The Government should also give special privileges and better incentives to civil servants working in rural areas.

6. The Role of the Private Sector.

Strategy :

The importance of private investment will be emphasised. To do this, all Government projects will be directed in such a way as to encourage high priority private investment. Policies and measures in all development sectors will be directed to overcome the obstacles and problems facing the private sector, particularly in accelerating production and exports, which are now the major weaknesses in the economic development process.

In agriculture, groupings of farmers in the form of cooperatives or farmers' associations will be promoted in order to provide a crucial link between production and marketing. Private investment in the fields of agro - business, storage and silo, and handling facilities will be promoted.

In industry, more investment, domestic and foreign, will be encouraged and channelled to high priority industries, i.e. export industries, industries which utilize a large proportion of domestically produced inputs, and industries located in provincial areas.

For financial intermediaries, the strategy will be to increase the volume of saving flowing into the financial system while improving the role of financial intermediaries, capital and money markets in mobilizing savings.

Targets :

Total private investment is expected to be 131,000 million baht or 63 per cent of total investment. This represents an annual average growth rate of 7.3 per cent per year.

Measures

A. To encourage business groupings, especially in the priority sectors, such as exports, tourism, financial institutions, etc. so that production and marketing can operate efficiently.

B. To encourage close cooperation and discussion between the Government and representatives of private sector professional groups.

C. To encourage private investment in businesses which do not require direct Government intervention.

D. To develop better planning for determining realistic policies for state enterprise.

E. To change and improve the operational methods of various Governmental departments so that the private investor will not be hampered by organizational limitations or ineffective administration of departments.

Conclusion

By advancing along the development path described above, the economic and social system of Thailand will be moved forward with more stability and equality, both serving to contribute to greater security. Moreover, the implementation of the Third Plan will strengthen the economic foundation for long run sustained growth. In this respect, rich natural resources and high quality manpower provide a strong basis for Thailand's future economic growth. However, in order to move the economy forward on the development path described in the Plan, the following steps are required :

(1) The strategy and measures formulated in the Third Plan must be followed. At the same time, with the changing economic, social and political environment some adjustments in the Third Plan formulation through annual plans may be required. However, unlike their predecessors, the new annual plans will concentrate on the evaluation of the performance and the analysis of the progress and shortcomings of implementation so as to permit the Government to adjust the economic instruments in appropriate ways.

(2) A harmonious relationship must be built up with the private sector, which is to be encouraged to play a more important role in the country's development process. This role, however, must be kept within certain limits compatible with the public interest.

(3) Various organizational weaknesses and administrative inefficiencies in the public sector must be corrected.

Economic and Social Development by Sector

Agriculture and Irrigation

The Third National Economic and Social Development Plan has as a basic policy the acceleration of agricultural production for export. This is partly to improve the economic and social condition of the farmers, and partly to solve the immediate economic problem of the balance of trade deficit.

The development of agriculture and irrigation during the Third Plan period will be based upon the following main strategies :

1. Agricultural development is to receive the highest priority. The Government will accelerate agricultural production and improve quality so as to increase exports. This will also help to promote agro - industries and raise the income of farmers.

2. Agricultural extension zones will be demarcated for various products. Crops and livestock for which there is a definite market will be produced in the zones which are most suitable.

3. Agricultural extension services are to be improved so that agricultural technique and technical information can reach the farmers more effectively. Agricultural production, sales and credit are to be coordinated into package programmes.

4. Programmes to improve natural resources for agricultural production e.g. water resources development, soil fertility development and forestry conservation, will be expanded.

5. Agricultural research will be improved, particularly research on those products which can be raised domestically and which can increase farmer income. Solutions will be sought for agricultural problems and methods of introducing modern agricultural techniques more widely so as to accelerate production and raise the quality of products.

6. Strengthening of agricultural institutions to achieve cooperation among the farmers and to provide facilities to the latter in production, marketing and other aspects of rural development.

7. Implementation of existing irrigation development projects will be accelerated. Emphasis will be given to the construction and maintenance of water distribution systems. New irrigation projects will be constructed in planned steps so as to be in accordance with future demand.

8. Greater Government services will be provided to the farmer, particularly agricultural credit and extension services. Greater cooperation and self - help among the farmers is required to achieve the development goals and the Government will foster appropriate institutions.

9. Improvement of coordination in marketing so that producers can sell their products at fair and stable prices. To achieve this, there will be promotion of agro-business agricultural institutions, and industries which use agricultural products.

The target for the rate of growth of the agricultural sector during the Third Plan will not be less than 5.1 per cent per annum as compared to the 4.2 per cent per annum in the Second Plan period. Existing projects will be extended and new high priority projects will be initiated :

1. The acceleration of production and marketing :

In the past the main agricultural products were rice, maize, kenaf, rubber and tapioca. In 1968 the value added from these crops amounted to two - thirds of the total value added from crop production. In the period of the Third Plan most of these crops will face marketing problems. Immediate measures are required to solve these problems.

Since Thailand is facing balance of payments problems, the immediate measures required are to promote agricultural production for export and to reduce agricultural imports. In the Third Plan there are accelerated agricultural production programmes for both export and local demand.

2. Research on crop production :

The most important research project is aimed at increasing yields by seed improvement and extension in support of the accelerated crop production programmes. However, consideration must be given to the ability of the farmers to utilize research results and to the actual market demand, e.g., the use of high - oil content soy bean seed, insect and plant disease resistant cotton, and high yielding rice and maize. During the Third Plan period, an agricultural research centre will be set up in the North, a sub - centre of which for highland crops will be set up in Chiang Mai to promote hilltribe development and to discourage " slash and burn " agriculture and opium growing.

3. Agricultural extension :

In the Third Plan the policy is to expand the activities of the agricultural extension service and to make them more effective. Emphasis will be given to solving various agricultural problems and to acceleration of various high priority economic crops. Agricultural extension zones for important crops will be drawn up. Other activities such as irrigated agriculture, second cropping, building agricultural institutions, training of more agricultural extension workers at various levels, and the coordination of extension work with research and marketing, will also be encouraged.

4. Fishery :

Thailand can be considered as an advanced Asian nation in fishery. Although the fish catch increased rapidly in the past 6-7 years, from 577,000 tons in 1964 to 1,594,500 tons in 1970, it still falls short of the demand for protein of the population which has also increased tremendously. In order that fishery development will meet with growing internal demand and provide a surplus for export, emphasis is on deep sea fishing and on coastal shrimp farming. One million rai of coastal land will be developed for shrimp farming and a shrimp culture research centre will be established.

5. Livestock :

The Third Plan policy is to accelerate production of beef cattle, water buffaloes, swine, ducks, and chickens both for internal consumption and for export. Good breeds of livestock will be promoted. Animal disease prevention and eradication work will be strengthened. Disease free and extension zones will be established. The existing marketing system will be improved.

The most important project is to increase beef production so as to provide sufficient meat for local consumption and for export at a rate of not less than 50,000 heads per annum. This project will largely be carried out by the Surat Thani Livestock Station, the Nong Kwang Livestock Station, the Ratchaburi Livestock unit and the Swine Research Centre at Nakhon Pathom.

6. Forestry :

The main forestry development policies are to preserve forestry resources, to increase production of forestry products, and to reforest areas which are now depleted. The major projects for forestry development are: the forestry resources survey project, the forestry conservation project to protect water sources, and the teak and other soft woods planting project. There will be cooperation with private enterprises to grow wood on empty land or depleted forests and in projects that will preserve our forestry resources such as national park conservation.

7. Land development :

The policy for land development is to accelerate its pace and make land development work useful to larger numbers of farmers. This is to be done by extensive land survey work and classification of land capability so that the availability of different types of land suitable for various crops would be known. Expansion of land development work will be carried out which will enable unused land to be used for productive ends. There will be cooperation in agricultural development of the greater Chao Phraya Basin between the Ministry of National Development and other Government agencies. As for land holdings, the policy is to encourage farmers to own their land, to protect them from losing their ownership, and to provide justice and security for those who lease land by accelerating the work of the Land Acquisition for Farmers Fund to provide land for farmers, particularly for low income farmers.

8. Agricultural institutions :

At present there are 991 cooperatives of all forms with 269,704 families membership 4,196 Farmers Groups, 210 People Irrigation Associations and 96 Water Users' Associations, the total membership of which is 695,699 families - only 14 per cent of the total of 5 million agricultural families in the Kingdom. These agricultural institutions are still rather weak and efforts will be made to strengthen them. This will be one of the most important steps in the development of agriculture.

The policy for development of cooperatives is to establish large multi-purpose cooperatives which can serve the farmers in production and marketing. The strategy to achieve this is to accelerate the expansion of the irrigation systems in the Coordinated Irrigation Project areas undertaken by the Ministry of National Development, to transform the present Credit Cooperatives into large scale Agro-Business Cooperatives, and to promote Settlement Cooperatives, Land Rent and Land Hire-Purchase Cooperatives, and the League of Cooperatives.

In the Third Plan, the policy is to combine the various agricultural institutions other than cooperatives into a single form of Farmers Groups which will have a legal standing and the authority to carry out business activities. These Farmers Groups will be formed only at the amphoe level so that they can later be transformed into cooperatives.

Irrigation

Irrigation is of the utmost importance in agricultural development. During the First and Second Plans the Government invested heavily in irrigation schemes, particularly of the multi-purpose type. For the Third Plan irrigation development strategy will be reshaped as follows :

1. To achieve the fullest utilization of water in the irrigated areas served by the completed irrigation projects. This can be done by implementation of agricultural development plans for the various river basins and accelerating the completion of water distribution systems or canals. The construction of new, large irrigation projects will receive a lower priority. The intention is to plan new construction to meet the real requirements of the future.

2. To improve irrigated agriculture by close coordination between the Ministry of Agriculture and other agencies dealing with agriculture in the Ministry of National Development. The coordinated operation plan for the development of the upper Chao Phraya is a good example.

Agricultural Credit

Agricultural credit is of great importance in raising the income of the farmer and in agricultural development. At the end of 1970 it was believed that the financial institutions providing agricultural credit could cover 10 - 15 per cent of the total requirements for agricultural credit. The Bank for Agriculture and Agricultural Cooperatives is the leading source of short-term and medium-term institutional credit.

The Third Plan's policy is to provide more short-term and medium-term loans to the farmers through institutional sources. Consideration will be given to the establishment of financial institutions that would provide long-term agricultural credit.

Assistance for Farmers

A special assistance programme for farmers is carried out through the Assistance for Farmers Committee. Since 1966 there have been two important projects :

1. Agricultural yield increase project. This project provides loans to the farmers for the purchase of fertilizer, pumps and other labour saving equipment. In this Plan period consideration will be given to setting up an Agriculture Extension Special Fund in the Bank for Agriculture and Agricultural Cooperatives to expand this project.

2. Rice price support project. The Government policy has been to guarantee a minimum price for rice by supporting the price of paddy since 1966. During the Third Plan period the rice price support method will be changed so that it will rely on the actions of the various agricultural institutions which will receive Government support in their effort to erect their own silos and other storage facilities.

Agriculture Marketing and inputs

Agricultural Marketing : Agricultural production normally faces marketing problems both internally and abroad. The farmers cannot sell their products at satisfactory prices and the prices also vary tremendously. In the Third Plan the Ministry of Economic Affairs will find ways and means to expand agricultural markets and to improve marketing channels as part of the effort to accelerate agricultural production. This can be achieved by the cooperation of agricultural institutions, the increase of silo and other storage capacity, and provision of more agricultural information to farmers.

Agricultural Inputs : Fertilizer, one of the most important agricultural inputs, still has a very high price and farmers cannot use as much as is desirable. The Third Plan policy is to encourage farmers to use more and cheaper fertilizer; this can be done by implementation of various measures and by improvement in the production techniques of the present fertilizer plant or by transforming it to produce other chemicals. Use of other agricultural inputs by farmers such as labour saving equipment, insecticides and herbicides will be increased by means of providing them at appropriate prices.

Agricultural State Enterprises

The main objective of the state enterprise in agriculture is to concentrate on the development of markets which promote agricultural occupations. The main agricultural state enterprises are the Fishery Marketing Organization, the Cold Storage Organization, the Rubber Organization and the Forestry Organization.

Moreover, there are accelerated rural development agricultural programmes. These are largely small water development projects for household consumption and agricultural purposes, and agro - business projects.

Industry and Mining

Industry : Industrial development during the Third Plan period will be based largely on private sector investment. There is great potential for industrial expansion in Thailand, particularly for certain types of heavy and other new industries. However, the conventional industries e.g. rice milling, saw milling, ice factory, and sugar factory still account for more than half of value added in the industrial sector. It is forecast that the value added in the industrial sector will increase by 8 per cent per annum and that by the end of the Third Plan the share of the gross domestic product generated from the industrial sector will account for 17.6 per cent of the total - an equivalent of 31,400 million baht. Since active industrial development was started only during the past Plan, the industries required for industrial and economic development have not been fully established to provide a firm base for raising income and employment. In the past industrial development planning has been confronted with many obstacles, e.g. lack of capital for industrial development, the tax system, and shortage of Government services to facilitate and promote industry. The Third Plan will put emphasis on solving these problems so that a solid base for industrial development can be provided.

Policies and objectives for industrial development are :

1. To change the structure of the economy so that industry would play a greater and more balanced role, i.e. to accelerate the share of gross national product generated by the industrial sector. Special emphasis will be placed on those types of industries which use agricultural products as raw material and which are labour intensive.

2. To maximize the utilization of national resources for industrial development so as to increase national income and employment.

3. To promote and encourage both existing and new industries to provide stable markets for the output of various agricultural groups and institutions. Industrial development is to be synchronized with accelerated agricultural production and marketing programmes.

4. To encourage investors in export - oriented types of industries as well as import substitution industries which use a great deal of local raw materials and labour. Industries which are established in rural areas will be fully supported.

5. To provide a more appropriate share of benefits for foreign investors under the Investment Promotion Act consistent with the overall national economic development policy and national emergency preparedness policy. Credit for industrial development will be increased to meet the needs of the expanded industrial sector.

6. To solve the various obstacles and problems of investors so that both local and foreign investors would be induced and encouraged to increase investment. The Government will provide more public services, industrial standards will be set; tax and land problems will be ameliorated; industrial management training and information services will also be strengthened.

7. The promotion of small industries as a base for large scale industries, and handicraft industries for exports is still a main policy. There is still room to improve industrial techniques to achieve productivity increases and to provide training and financial assistance.

In order to implement the above policies and objectives, the industrial development plan has outlined various projects necessary to achieve them; e.g. industrial estates, industrial markets development project, and a project of handicraft industry for export, are all new programmes for the Third Plan. Existing industries will be reviewed and policies developed so that they will fit the objectives and policies stated in the agricultural and trade development plan. Large scale industries to be set up by the private sector during the Third plan period are the petro-chemical industry, the steel industry, food industries and machine tool industry. The Government will cooperate with the private sector to reduce the various obstacles and problems so as to increase the volume of investment.

Mining : Minerals are one of the natural resources that will be of increasing importance. Minerals of which there are still sufficient deposits for production and export include tin, fluorite, antimony, manganese, and several other newly found ores. In addition there are substantial non-metallic resources: e.g. white clay, quartz, and marble which can be produced for exports.

The policies and objectives for the development of mining in the Third Plan are :

1. To identify mineral deposits more fully by geological and geophysical surveys so that they can be exported and earn foreign exchange. This will include exploration for petroleum and other natural fuel deposits.

2. To encourage private sector participation in mineral surveys and development carried out under the supervision of the Government. The Government will provide facilities to induce large investors to develop mineral resources through greater credit assistance, technical guidance and facilitating the issuing of mining certificates. The Government will improve and update the various mineral regulations to establish incentives for investors.

3. Emphasis will be placed on increased production of fluorite and other industrial ores through greater survey and development for export or other utilization. The Government will provide technical assistance and improve transportation facilities in order to raise the quantity of ores and reduce the cost of transporting the ores from the mine as is consistent with the export targets set in the Third Plan.

In order to fulfill the above objectives and policies the following projects and programmes are to be supported : project to increase tin production, project to increase fluorite production, and other mineral production projects including on underground water survey, and a basic geological survey. New projects that will induce further investment in mining development in the Third Plan are mining credit projects, technical assistance and training for miners in the latest mining techniques, e.g. mining where there is shortage of water, and the aerial mineral survey project.

Commerce and Services

As the balance of trade deficit is an obstacle to stable economic development, one of the most important measures to reduce the balance of trade deficit is to continue vigorous export promotion of agricultural and industrial products and services by enhancing the competitiveness of our products through lower production costs as well as greater export volume. Ways will be sought to support and guarantee internal prices for high priority crops. Government services in marketing will be expanded.

Commerce and service policies in the Third Plan are as follows:

1. The Government will continue its policy of free enterprise orientation. Private trading is to be encouraged under limited Government control insofar as it is necessary. The Government will establish trading policies and provide necessary services for the business and trading sector. Unnecessary state enterprises will not be started so as not to compete with private enterprises. The objectives of existing state enterprises will be reviewed so that policies can be established to improve them for marketing development.

2. To coordinate fiscal and monetary policy and trading policy to promote production and marketing, particularly to increase exports.

3. To carry out production and marketing research for various commodities so that planning for production, marketing, and exports can be made to improve efficiency and coordination. In this regard, consideration will be given to establishing marketing boards for major commodities.

4. To seek actively more foreign markets for agricultural and industrial products. Services and various means to facilitate exports will be provided. Tax and administrative regulations for exporting will be improved.

5. To encourage people to use merchandise that are produced locally. Various farmers institutions, e.g. farmer groups and cooperatives, will be fully supported to build up a marketing system linking production and sales at the farm level.

6. The Government will promote tourism and other related businesses. The Government will cooperate closely with the private sector to improve the environment from the standpoint of comfort and greater safety in order to attract more tourists. The private sector will be encouraged to maintain existing resorts and to develop new ones. A master plan for tourism, presently lacking, will be drawn up.

7. The Government will promote airline enterprises, shipping and insurance businesses in order to earn more income and to reduce costs. This will stimulate trade expansion and the foreign exchange earnings of the country.

In order to fulfill the above policies, the Government will adopt the following important measures and programmes :

Export markets : Export markets will be improved for Thai agricultural products, particularly markets for high priority crops, namely, maize, soy bean, silk, shrimp and cattle. The trading of traditional major commodities, such as rice, rubber, tapioca, tin, fluorite and some industrial products will also be strengthened and improved.

Internal marketing system improvement : Internal markets will be expanded for local producers. This can be achieved through coordination between production and sales. Futhermore, adequate warehousing facilities will be provided at the port to insure against losses and waste, thus reducing handling costs. Facilities at the port will also be improved. The marketing system will be developed as follows:

A. Agricultural institutions are to be equipped with more sales and marketing facilities e.g. silos, barns, warehouses, and marketing credit.

B. Various marketing regulations for sale, purchase, quality control and standardization etc. will be established.

C. Trading centres at proper places in the Kingdom will be set up, e.g. a kenaf trading centre in the Northeast and a corn trading centre in the Central Region.

D. Markets offering minimum guaranteed prices to the farmers will be established. Marketing boards for certain agricultural products are to be set up.

E. The present state enterprises will be studied and improved so that they can provide better and wider marketing services to the farmers.

F. Measures will be developed for groupings to prevent trading monopolies and to protect the interests of the producers and consumers.

Foreign markets expansion : In order to expand foreign markets, the following measures will be taken :

A. The method of expanding foreign markets will be improved by relying more on private trading delegations, by improving the work of the state trading offices abroad, by improvement of trade fairs and by provision of trading information to those who are interested. Private sector participation in these activities is to be fully encouraged.

B. To encourage the grouping of exporters to avoid unfair pricing and to build up bargaining power with foreign buyers.

C. To seek long - term contracts with foreign countries for certain commotities which have marketing problems and whose prices are not stable e.g. rice, maize and sugar.

Promotion of Thai people in trading : To promote Thai trading the Government will extend loans to Thai people in the provinces. Credits will also be extended for Thais to secure trading shops. Training in trading will be provided for. Encouragement will be given to farming associations for wholesaling and retailing of each category of products.

Marketing studies and research : To conduct marketing research for various agricultural and industrial commodities so that production and marketing plans can be linked. Regional and local administration will be improved so that local trading movements can be reported efficiently and at the same time immediate advice provided to local farmers and traders.

Export commodity standards : Export commodities will be efficiently inspected to maintain standards in order to secure the confidence of foreign markets. Laws and regulations in this area will be revised and improved coordination at different levels between producers and buyers will be sought to assist in setting commodity standards which would satisfy buyers abroad.

Insurance : Insurance business is to be promoted to gain the fuller acceptance of the people and to enable insurance firms to play a greater role in financial development and mobilizing national resources.

Tourism promotion : To study and develop a master plan for tourism. To encourage close cooperation between private enterprises and the Tourist Organization of Thailand in inducing more tourists to come to Thailand. Resorts will be further developed; the various problems of and obstacles to tourism are to be eliminated in order to increase the number of tourists and induce them to extend the length of their stay in Thailand.

Transportation and Communication.

The development of transportation and communication during the previous plans was geared to the completion of the main transportation and communication systems so as to lay down a firm foundation for economic and social development. The development of the main transportation and communication systems has made tremendous progress and has, by and large, achieved the targets of the Plans.

The Third Plan will carry on the above policy. Highway development still has a very high priority and will receive the greatest share of the sector's development budget. However, the emphasis will be on provincial highways and village or feeder roads, and on land transport improvement particularly around the metropolitan area to alleviate traffic congestion in Bangkok. The development project that receives the second largest share of the sector's development budget is telephone and telecommunications development to meet the increasing demands arising from the expansion of the economy. Air and water transportation will be increasingly important. However, the projects for these modes of transportation, e.g. the construction of the Second International Airport, the construction of the deep-sea harbour and the development of inland water transportation are still, at the start of the Third Plan, in the stage of preparation of economic and engineering feasibility reports. As for railway development, emphasis will be on the improvement of services; survey and planning of new railway lines will be made only for those which have high economic returns and those which meet the Government policy. Coordination among various modes of transport will be an important measure in the Third Plan to save development resources and to yield the highest returns to the economy.

Since transportation and communication development projects in the First and Second Plans were often trimmed down due to budgetary limitations, the transportation and communication development projects in the Third Plan are listed according to their priorities and a secondary set of projects is reserved for consideration during budget review.

In formulating various transportation projects for the Third Plan, efforts will be made to link production areas with markets or destination points for exports in order to lower production costs. The following measures will be taken :

1. To construct the greatest number of provincial highways or rural roads to link producing areas with markets.

2. To promote close cooperation between transporters and exporters, so that exporters can ship their products at moderate cost and so that transportation services will be sufficient. Efforts will be made to establish special low rates for transportation of export products, particularly on the railway.

3. To improve and to construct more storage and handling facilities for exports, along the banks of the Chao Phraya River or on the eastern sea shore, particularly for those agricultural and minerals exports which are expected to increase in the Third Plan.

4. It is expected that after four more quays have been constructed with complete facilities at the Port Authority of Thailand, there will be sufficient quays to meet imports and more than sufficient for exports during the Third Plan period. Facilities at the port should, however, be further improved so that industrial exports can be accommodated efficiently.

5. The present channel leading to the Port of Bangkok does not permit liners over 565 feet in length to enter the port. Bigger liners, however, are being used in foreign trade as they reduce transport costs substantially. Since the Port of Bangkok will still be the leading port of the country during the next five to ten years, it is appropriate to improve the present channel to allow liners of over 565 feet in length to enter the port. It is expected that, with the completion of this project, the freight rates between Bangkok and other leading ports will be reduced.

6. In order to promote national navigation, all Thai maritime firms will be supported to ship more exports and imports. This will strengthen both the state and private maritime companies. As for the state maritime company, consideration will also be given to combining coastal shipping with international shipping. In improving international shipping greater efforts will be made to improve services on existing lines. The opening of new shipping lines will be made only after careful deliberations and planning taking into account various economic considerations, and the experience and ability of management.

7. During the First and Second Plans, the volume of air traffic at the International Commercial Airport of Don Muang greatly increased. The Government, therefore, has secured a new site at Nong Ngu Hao for the construction of the Second International Commercial Airport when it becomes necessary to do so. At the same time the Government has improved the existing runways, parking lots, control terminal and other facilities at Don Muang to meet the increasing volume of air traffic and passengers. At the end of the Second Plan it was found that airlines were flying jumbo jets and this development brings many new problems to the airport at Don Muang. It is, therefore, necessary to make a preliminary study to determine to what extent Don Muang should be improved for maximum benefits, and the necessity of having a second international commercial airport or not, and if so, when it should be constructed. After this study, if the necessity of a new airport appears, a master plan for it will be prepared.

The main targets for transportation and communication development

1. Construction and maintenance of national highways	5,974 km.
2. Construction and maintenance of provincial highways	7,468 km.
3. Construction of tertiary and local roads	12,200 km.
4. Construction of railway coaches for passengers and freight	922 coaches
5. Improvement of internal commercial airports	7 airports
6. Construction of four additional quays along the eastern front of the Port of Bangkok to increase cargo handling capacity	1,500,000 tons
7. To carry out a survey for deep-sea port and to construct two coastal harbours	2 harbours
8. To expand rural post offices	100 offices
9. To increase telephone numbers in Bangkok - Thon Buri	219,700 numbers
10. To increase telephone numbers in other provinces	53,500 numbers
11. To construct television stations in other provinces so that the stations in Bangkok can be connected with other provinces by the microwave system	17 stations.

The main transportation and communication development projects are :

1. National highway construction and maintenance project. This includes survey of 462 km. of highway, construction and maintenance of 91 routes covering a total distance of 5,974.1 km.; of which 16 routes are in the North - for a total distance of 1,041 km.; 30 routes in the Northeast - for a total distance of 2,636.7 km.; 35 routes in the Cental Region - for a total distance of 1,163.6 km.; and 10 routes in the South - for a total distance of 1,132.8 km.

2. Provincial highway construction and maintenance project. The target is to survey 700 km. of provincial highway and to construct and maintain 245 routes of provincial highway covering a distance of 7,467.6 km.; of which 70 routes are in the North - a total distance of 2,452.2 km.; 58 routes in the Northeast - a total distance of 1,558.5 km.; 75 routes in the Central Region - a total distance of 1,920.0 km.; and 42 routes in the South - a total distance of 1,536.7 km.; in addition 12,000 km. of tertiary, local roads and roads along reservoirs will be constructed.

3. Railway development project. This project is to improve the efficiency of railway services to meet rising demand. It includes procurement of 154 diesel locomotives, the construction of passenger coaches and freight cars and changing to bigger rails on some routes.

In addition there will be a survey of railroads from Klong Sib Kao to Ban Pa Chee - a total distance of 75 km.; from Bua Yai - Roi Et - Mukdahan to Nakhon Phanom - a total distance of 375 km.; and from Den Chai - Chiang Mai to realign the route, a total distance of 215 km. Economic feasibility studies will also be made for the Chachoengsao - Lam Chabang - Sattahip route and Klong Sib Kao - Ban Pa Chee route.

4. **Inland waterways improvement project.** This project is to conduct economic and engineering surveys to improve main rivers and canals as a means of rapid and safe transportation in the central plain. This covers the Mae Klong River, the Ta Cheen River, the Chao Phraya River and Bang Pakong River. After the surveys are made, work plans for the improvement and deepening of waterways will be prepared.

5. **Coastal ports improvement and construction project.** This project is to conduct surveys to lay out plans for the deepening and improvement of waterways leading to the ports so that coastal vessels and fishing boats can utilize them all year round. This project will be conducted as follows :

a. Economic surveys for 15 ports. When the results of the surveys are known, deepening of waterways for appropriate harbours will proceed.

b. Engineering surveys for ten coastal ports.

c. Deepening of water channels leading into four ports.

d. Construction of the ports of Phuket and Songkhla to be started at the end of the Third Plan.

e. Survey of the coastal ports of Kantang and Narathiwat.

6. **The improvement of cargo handling facilities and the expansion of quays at the Port of Bangkok project.**

The expansion of the quays at the eastern side of the port carried out during the Second Plan will be continued. This includes the construction of warehouses, open air space for cargoes, roads, bridges, railroads and other facilities necessary for the trans-shipment of cargoes at the Port of Bangkok. This is to make the Port of Bangkok capable of handling six to seven more cargo liners of over 10,000 tons and two to three large-size loading ships. The Port can then handle an additional 1.5 million tons of cargo.

7. **Surveys for the construction of deep-sea harbour project.** To survey the deep-sea harbour at Sattahip to determine the suitability of transforming it into a modern deep-sea commercial port. This is to meet the needs of the expanding economy. This survey at Sattahip will include the study of containerization. The survey at Sattahip will then be compared with the study at Lam Cha Bang so that a decision can be made as to where and to what capacity a second commercial port should be built.

8. **Provincial airport development project.** To improve the internal airports so that they have concrete or asphalt surfaces conforming with international standards and can be used in all weather conditions. During the Third Plan period construction work at provincial airports will proceed according to plans already made for Mae Sod, Tak, Phrae, Chiang Mai, Loei, Surat Thani and Phuket. Chiang Mai Airport will be developed into an international airport.

9. **Rural post and telegraph expansion project.** Post and telegraph offices in the rural areas will be constructed to transfer the work from amphoes and private offices. One hundred new post and telegraph offices in the rural areas will be constructed during the Third Plan.

10. **Expansion of metropolitan telephone system project, 1972-1976.** This calls for the addition of 181,700 lines in the Bangkok - Thon Buri area telephone system, nine telephone exchanges to be installed and two permanent exchanges to be built. Twenty-three existing telephone exchanges will be expanded. By 1976 Bangkok - Thon Buri will have thirty-four telephone exchanges and 310,000 line.

11. **Expansion of provincial telephone system project, 1972-1976.** To improve and expand telephone exchanges in the provinces to meet demand. This project includes the procurement of land for the consstruction for forty-nine exchange offices, construction of 80 new exchange buildings, adjusting three exchange buildings and installation of 118 exchanges. The number of new telephones in the provincial areas will be increased by 53,500. As a result, the 156 exchange offices in the provinces will be able to provide 106,300 telephone numbers by 1976.

12. Expansion of national television network. Seventeen television stations will be established in the North and in the South. The television station at Lampang will be expanded. The television switching centre at Bangkok will be expanded during the Third Plan to allow microwave transmission to the North and the South.

Power

Electric power development during the previous two Plans was aimed at building a large scale, high efficiency central system of electric power plants with low production cost. Transmission lines and distribution lines were also built to connect various changwats and amphoes. The objective was to replace the small, old diesel power plants, most of which could not produce sufficient power and were scattered over the country. Also, the electric power they generated was of high cost. Electric power development during the Third Plan is to expand the power generating capability and distribution system, and gradually to lower power rates so as to improve the well being of the people, and to promote various development activities. In addition, rural electrification programmes will be carried out in accordance with a definite work plan.

Targets

The targets for electric power development in the Third Plan are :

1. The production of electric energy. To expand electric power production to meet national demand which is expected to increase at the rate of 16.2 per cent per annum. Electric power is to be increased from the present 1,169 megawatts to 2,469 megawatts by 1976. Of the generated power, 921 megawatts will be from generating plants at various dams, 1,340 megawatts from steam turbine power plants, while electric power produced by diesel and gas turbine power plants will remain at the same level as at present to serve as reserve power for the system. With achievement of the above system expansion target, it is expected that electric energy production will increase from 5,700 million kilowatt hours in 1972 to 10,200 million kilowatt hours in 1976.

2. The distribution of electric power. It is expected that by 1976 the demand for electric energy will reach 9,574 million kilowatt hours or increase at the rate of 16.2 per cent per annum. The sales of electric energy by the Metropolitan Electricity Authority to all users will rise from 3,000 million kilowatt hours in 1971 to 6,000 million kilowatt hours in 1976, or an increase of 16.4 per cent per annum. The sales of the Provincial Electricity Authority are expected to rise from 915 million kilowatt hours in 1971 to about 2,200 kilowatt hours in 1976, or an increase of 19.2 per cent per annum.

3. The reduction of eletricity rates. It is expected that during 1972 - 1976, if the national demand for energy is increasing at a rate of 15.5 per cent, lower than the forecasted rate, and the rate at which energy can be purchased from Nam Ngum Dam in Laos is not higher than that of energy produced from internal steam power plants, the Electricity Generating Authority of Thailand will be in a position to lower the rates for sale to distribution authorities. It is expected that the Metropolitan Electricity Authority can reduce its rates twice - an amount of not less than 70 million baht; the Provincial Electricity Authority whose sales programme in the country will reach the point of completion, is able to buy electricity from the Electricity Generating Authority of Thailand and resell it to the various types of users at a lower rate than what it can produce from its diesel generating plants. It is therefore expected that the Provincial Electricity Authority is also in the position to lower power rates, particularly for the industrial plants which are located in the provinces.

Electric power development strategies

1. **Budgetary burden relief.** Most of the organizations involved in electric power are state enterprises to which the Government has provided initial capital for investment. These organizations now have their own income. The future electric power expansion projects which require heavy investment during the Third Plan should, therefore, rely on long - term foreign loans for the foreign exchange component and on the organizations own operating revenue for the local currency components. This is to relieve the burden on the limited Government budget.

2. **Provision of water for agricultural uses.** During 1967 - 1971 it was found that the pumping of water for agricultural purposes in the Chao Phraya Plain and in some areas of the Northeast which fall under the irrigated areas managed by various Government agencies, has turned to the use electricity from the Provincial Electricity Authority, replacing the diesel engines. At present, low voltage distribution lines for water pumping purposes have been installed in 20 localities consuming about 3,200 KVA of electric power, and lines are being installed in another ten localities. Although the demand for electric energy for pumping water for agriculture is still comparatively low, it can be seen that electric power has begun to play an important role in agricultural development. It is expected that demand for electricity for pumping water in agriculture will increase greatly. However, the suitable localities with sufficient economic returns first have to be identified.

3. **Acceleration of industrial development.** This is one of the main policies of the Third Plan. It is expected that the electric energy demand for industrial and commercial use will be around 76 per cent of the total demand. The selection of sites for industrial estates, the normal reduction of electric power rates and the special rate reductions for export industries, import substitution industries, and other important industries as selected by the Government will have very important effects in accelerating industrial development.

4. **The expansion of distribution networks to the rural areas.** The development of electric power in the rural areas will encourage production and marketing of agricultural and industrial products. Growth and development will thus be widely spread into the rural areas.

Important electric power development projects.

1. Production

a. The installation of the fourth unit of the steam power generator at South Bangkok Power Plant, which will then produce 1,000 megawatts of electrical power.

b. Kwai Yai Dam construction Phase I.

c. Steam power generating plant construction at Mae Moh, using lignite as fuel.

d. The construction of a distribution system to link Nam Ngum Dam in the Kingdom of Laos to the transmission network.

2. Distribution

a. The construction and improvement of the distribution system in Phase 3, Yanhee project covering the area of five changwats.

b. The construction and improvement of the production and distribution systems in self - generating areas of seven changwats.

c. Accelerated rural electrification project of the Provincial Electricity Authority.

d. The expansion and improvement of the distribution systems according to the five year plan of the Metropolitan Electricity Authority.

3. Other power development projects

A survey for the construction of a petroleum pipeline from the East to the Northeast will be carried out. In principle, this project should have a high economic return. However, the data to justify this project are lacking, and, therefore, a feasibility report should be prepared with cooperation from abroad.

The development of the Lower Mekong Basin Project, including Stage 3 of the economic and engineering feasibility studies of the total irrigated areas of the basin, will be supported. Hydrological and geological studies will be made for planning and control of the utilization of water from various irrigation tanks. The survey results of Pa Mong Stage I require further studies. The Mekong Basin Development Plan will be integrated into the National Plan.

Social Services

Development of social services in the Third Plan emphasizes two important objectives. First, improvement of the standard of living of the people with respect to education, public health, housing, occupational and social welfare. Secondly, emphasis on attempts to change the attitudes, behaviour and ways of life of the people to cope with the necessities of the present, including the improvement of the environment and individual. These two objectives have a very significant meaning material as well as spiritual

Economic development in the past decade has produced satisfactory results in many material ways. But at the same time this progress has created many problems in the society. The main causal factor is the high rate of growth of the population and the limited ability to provide the people with education and public health services.

Development during the Second Plan did not sufficiently increase employment opportunities and thus there is a tendency for unemployment to increase in both the urban and rural areas. The important social problems to which more attention should be paid during the Third Plan are as follows:

1. Unemployment

In rural areas a large number of people are underutilized, and in some seasons they work only about one half to three quarters of a reasonable work week. In urban areas unemployment, under-employment and low incomes are becoming increasingly prevalent, with a consequent deterioration of family life.

2. Problem of land shortage

The problem of land tenure has become more acute due to the causes mentioned above, and to the small size of holding arising from the division of land among heirs. Landowners who cannot make use of these smaller holdings to produce enough food for their living, attempt of find more land or have to sell the land to the rich. Loss of land tenure always causes social problems since people then have nothing to hold on to and lack the incentive to perform their duties to society.

3. Migration from rural areas. More rural people have migrated to cities, particularly to the metropolitan areas where employment in manufacturing, trade and services has expanded rapidly. Migrants hope to find jobs or higher education. However, the limited number of opportunities in the metropolitan area make them compete for jobs and accept low wages. Women and children are also seeking jobs to augment family incomes, which further limits wages.

4. Working conditions. In general, they are neither healthy nor safe. Workers receive very little compensation when accidents occur and they lack security in their jobs. There are problems of absenteeism and lack of cooperation between employers and employees, which result in low productivity.

5. Social adjustments. During the last ten years, Thailand has been in a period of rapid economic change which affected social attitudes, leading to high cost of living and a mixing of foreign and Thai cultures. This, in turn, caused changes in behaviour, tastes, and faith in culture and religion, and a decline in morality within some groups of people and youths.

Measures and development strategies.

1. Accelerating rural development to make all plans and projects, including construction, have definite targets in order to create jobs for the people in the area. Establishing public employment projects for those in remote arid areas or those facing natural disasters.

2. Publicizing information concerning labour markets, professional guidance and providing services in employment and investment in various areas.

3. Increasing vocational training for youths outside school, employees, veterans and new member of the labour force.

4. Starting new land settlement projects and improving existing projects for higher efficiency.

5. Opening community development areas; emphasizing the training of local leaders at the village and tambon levels; developing occupational groups and encouraging rural development volunteers.

6. Improving laws and measures for protection of labour and the process of wage determination, promoting better labour - employers relations and the establishment of employees' and employers' associations within appropriate limits and in suitable forms.

7. Providing greater social welfare, in various forms, for women, children, the old and the handicapped by encouraging a greater role for the private social welfare organizations.

8. Increasing religious training and teaching in schools and remote rural areas. Propagating our culture by rehabilitating and improving religious places and antiques.

Important targets and projects

Important targets and projects in the development of social services during the Third Plan are as follows :

1. Labour employment bureau : This will serve as an information centre, giving information about places that need workers, providing advice, occupational training, arranging for employment, and providing other facilities for people seeking to employ the local labour force. Employment services will be provided for 150,000 people. Forty - five employment bureaus, both in the central and provincial areas, will be established.

2. Occupational training : Training for new occupations will be expanded in the metropolitan areas. Three regional occupational training institutes will be established to upgrade workmanship and to train foremen and occupational training teachers. The employees' living conditions will be improved and working regulations and conditions will be safeguarded. Child labour will be closely supervised. The Fund for Injured Workers will be established with an office. Minimum wages will be set. Various employees' and employers' associations will be established. Training in labour relationship will be provided.

Community development

To open up community development areas at the rate of 20 amphoes per year. Local leaders at the tambon and village levels will be trained at the rate of 15,000 persons per year.

Land settlements and self-help land settlements

Alloting land for people in the form of small holdings totalling approximately 3,500,000 rais; and larger holdings to an amount of 375,000 rais.

Establishing five more settlements. Land in the existing 53 settlements will be allotted to 38,480 families, covering an area of approximately 677,200 rais. The southern land settlement will be improved so as to make it a model settlement.

Accelerating the process of allocating land titles by a speedier completion and distribution of land title documents.

Urban and local development

The rapid expansion of the metropolitan area to its present size was due mainly to private investments during the last Plan period. Government investment in urban development, particularly in the metropolitan area, was not sufficient, thus giving rise to a number of problems :

1. Problems of the metropolitan area.

a. City planning : At present the lack of overall city planning and the fact that the City Planning Act of Bangkok has not yet been enforced, make public utility planning, such as waterworks, drainage and sewerage, telephone, electricity, road and traffic, much more difficult.

b. Housing : At present there is a shortage of approximately 100,000 housing units for various income brackets. If the rate of construction, both Government and private, remains the same as in the past, during the next ten years the shortage will increase to 170,000 units. Out of this, the shortage of housing units for low income families (income below 1,500 baht per month) is not less than 60,000. Furthermore, the problem of slums continues to grow.

c. Waterworks : Both the distribution system and the production capacity of the Metropolitan Waterworks still cannot keep pace with the rapid expansion of communities in various areas. Moreover, the failure of city planning and the City Planning Act to control land use makes planning to expand water distribution systems more difficult. In Summer there is always a shortage of water in numerous areas. In 1971 shortages have occurred in some places even during the rainy season.

d. Traffic : The present lack of a basic plan for traffic control creates congestion and a great amount of economic waste. There are many cul de sacs which cannot be used as thoroughfares to help relieve the congestion. The rate of increase of vehicles at 15 per cent per year during the Second Plan compared with the rate of increase of road construction of less than one per cent annually, shows the limited capacity of city roads to handle the increase in traffic and the consequent traffic congestion problems.

e. Rain drainage and sewerage : At present, problems of rain drainage and sewerage in the Bangkok metropolitan areas are serious. Every canal, and even the Chao Phraya River, are polluted. In addition there are problems of flooding after heavy rain. All of these are obstacles to economic development and are hazards to the health of residents in the metropolitan area.

f. Creating public parks. In the capital, as well as in rural communities, there is still a lack of public parks where people living in crowded space can find relaxation. It will be seen that there are few public parks in the Bangkok - Thon Buri areas. In the Third Plan, support will be given to the municipalities and sanitary districts all over the country to prepare public park projects by using public or treasury land or other land that need not be purchased.

2. Problems outside the metropolitan area.

a. Town planning : Similar problems exist in other towns besides the metropolitan area. The lack of plans and of an Act to control the expansion of towns and communities leads cities and towns throughout the whole Kingdom to expand without definite plan or direction.

b. Provincial waterworks : Provincial waterworks are available in every main town of each changwat and large community. However, in most of them, the production and distribution systems are not sufficiently large. Improvements are needed in their administration. The income earned by most provincial waterworks is sufficient for their day-to-day operations but not for financing further expansion.

c. Provision of potable water in rural areas : There is still a serious shortage of potable water in villages and in various sanitary districts. Although there are many Government agencies responsible for providing potable water, the shortage has not been overcome. During the Second Plan period the Government undertook to provide clean potable water for approximately 15,000 villages, yet there are still about 35,000 villages to be supplied, out of a total 50,000.

3. Local development problems.

At present the four forms of local administrations, namely municipalities, sanitary districts, provincial administrative authorities, and tambon administrative authorities, have no development plans which specify definite policies, targets and development measures. Thus there are many obstacles to the budget for the purpose of local economic and social development, and the benefits gained are not as satisfactory as they should be. Local revenues collection is not sufficient for the community even in localities with dense population and a high level of economic activity.

Policies and development strategies

During the Third Plan the Government will pay more attention to urban development. This will not be confined only to metropolitan area development, but will cover other towns and localities, particularly towns expanding rapidly and with a high development potential. However, this process needs a considerable amount of investment and time. Hence, in the Third Plan attempts should only be made to solve the immediate problems arising in various cities and towns in order to reduce damage which may have an impact on the population as a whole.

Although the Government initiated several public utility projects for urban development during the Second Plan period, the results were not sufficient to solve the problems. Therefore, in the Third Plan period, definite targets, projects and measures to achieve goals in urban and local development are set as follows :

1. Policy and strategies for the Bangkok metropolitan area development

a. City planning : The Government will undertake to promulgate the City Planning Act at the beginning of the Third Plan period, so that the Government agencies concerned are able to proceed with definite directions and more efficiency. Moreover, consideration will be given to the establishment of a united or joint city administration covering an area of four changwats, namely Bangkok, Thon Buri, Samut Prakan and Nonthaburi, for more efficient, economical, flexible and cooperative administration in the city zone.

In city planning, consideration will be given to adequate public utilities needed for town development such as lighting of public places, footpaths along the roads, rain drainage and sewerage.

b. Housing : The Government will set up an agency with an overall responsibility for housing. As the first step, an organizing committee with its own office will prepare an overall housing plan for both new and existing housing, together with the improvement of slums scattered over the city. Financing shall be sought internally and externally to improve and increase housing in the metropolitan area rather than relying entirely on the Government budget.

In providing land for housing, measures should be taken to keep the land price under control so that people have a reasonable chances for acquiring space for living and working. This measure is to include securing land for schools, hospitals and other public buildings.

c. Waterworks : The Government will improve the administration of the metropolitan waterworks and accelerate the construction and improvement of productive capacity and distribution system, on a step by step basis, according to the Metropolitan Waterworks Master Plan.

d. Traffic : An overall master plan for the city traffic will be prepared. The Office of City Traffic Planning is to be established as a technical planning unit to coordinate projects of various departments to make improvements on the plan as necessary, and see to it that they are carried out according to the master plan. Moreover, the Government will consider the establishment of an organization responsible for the construction and administration of toll - roads.

e. Rain drainage and sewerage : The Government has already initiated a project for rain drainage, sewerage and flood protection of Bangkok and Thon Buri. Consideration will be given to the integration of these activities into the Metropolitan Waterworks Authority.

2. Policy and strategies for development outside the metropolitan area

a. Town planning: As in the case of the metropolitan areas the Government will proceed to implement the Town Planning Act as soon as possible, and to accelerate the planning of towns with large communities and rapid growth in order to control city expansion according to a specified pattern.

b. Provincial waterworks : The Government shall conduct surveys to plan and specify the order of priority of various waterworks projects which are under the responsibility of the Department of Public Works, municipalities and private companies holding concessions. There will be more expansion and construction of waterworks, together with a search for financing sources to invest in these projects.

c. Provision of potable water in rural areas : Lack of appropriate cooperation among Government agencies with respect to the provision of potable water obliges the Government to coordinate and to divide their functions and to determine targets by joint planning for more efficient and rapid operation of these projects.

3. Policy and stategies in local development

a. To accelerate the growth of small communities, backward and remote rural areas so that economic, social and public services inequalities can be narrowed.

b. To encourage local Governments to increase their incomes by improving revenue collections, collections systems, and to consider the increase of some types of taxes.

c. To encourage local Governments to participate in planning of budget allocations for local development. As for the central government supporting appropriations, support will be given to further increase of these funds for improvements of education and public health.

d. Ways and means to enhance local revenues need immediate consideration. The central government supporting appropriations will be jointly scrutinized by the Government agencies concerned and allotted in accordance with the Plan.

Main targets and projects.

1. Development of the Bangkok metropolitan area : It consists of the following projects :

a. Metropolitan waterworks project : Construction work and improvement of the administrative and financial system of the Metropolitan Waterworks will be undertaken according to the advice of engineering and administrative consultants in order to improve the efficiency and scope of operations. Improvements will be made in the production and sale systems in order to enlarge production capacity from 1 million to 2 millions cubic metres per day.

b. Construction and improvement of drainage system for Bangkok and Thon Buri : Construction of tunnels and pumping stations will be continued in the Rama IV area. Another pumping station will be built at the end of the Padung - Krung Kasem canal on the southern side. Other constructions such as sluices, embankments and improvement of various canals in the inner districts of the city will be undertaken.

c. Road project for Bangkok - Thon Buri : Work will be undertaken according to the Ten Year Road Project which has been jointly planned with the Bangkok - Thon Buri Municipalities. Two more bridges across the Chao Phraya River will be constructed in the Ta - Chang Wang - Nar area and at the end of Sathorn Road.

d. Metropolitan traffic project : A master plan will be used as a framework for the improvement and planning of the city traffic system to help relieve traffic congestion. The setting up of an organization concerned with the construction of special roads, possibly including toll expressways, is being considered.

e. Housing project : The shortage of housing units at present is approximately 100,000 units. During the Plan period, the Government will construct as many housing units as possible for low income families. Moreover, the Government, at the same time, will encourage the private sector to build middle income housing. This project will be launched both in the central and provincial areas, together with slum clearance efforts.

2. Development outside the metropolitan area

a. Provision of potable water in rural areas throughout the Kingdom :

Various Government agencies concerned with this matter, e.g. the Departments of Public Works, Mineral Resources, Health, Local Administration, Irrigation, Community Development and the Office of Accelerated Rural Development will carry out this work to help approximately 20,000 villages.

b. Provincial waterworks project : Work will be done to improve and expand the production capacity of various waterworks. New waterworks will be created in 20 localities each year. A centre for waterworks development will be established in each of the four regions of Thailand, the North, South, East and Central Regions, Surveys will be conducted to draw up the basic master plan for nine high priority waterworks.

c. Town planning project : Town planning projects will be undertaken in all Changwats, except the metropolitan area. Overall planning for six towns will be conducted each year, covering thirty towns during the Plan period. Specific town planning areas will be established in 60 towns every year, covering 300 towns in all. Ministerial Decrees will be enforced to control the overall town planning in eighteen towns and to control specific plans in seven towns.

3. Local development : During the Third Plan the budget for local development has been set at approximately 8,543 million baht, with an average rate of increase of 6 per cent per year. Out of this amount, 5,813 million baht will be financed by local governments own revenues, which are estimated to increase at 9 per cent per year and the remainder of 2,730 million baht will be financed by the central governmnt transfers, which increase at an average rate of 4 per cent per year. The total amount shall be spent as follows:

a. Education : The development of the Municipal Education Project requires approximately 1,270 million baht, which is 19 per cent of the total expenditures for local development. Out of this amount 763 million baht will be financing for 250 schools and to supplement teachers' salaries.

b. Road construction and drainage : This requires an amount of 2,100 million baht, which is 32 per cent of the total expenditures for local development. Out of this figure, 776 million baht will be allotted from the central government budget to help local areas improve and build roads with a total length of 440 kilometres, drainage pipes and pavements of 1,100 kilometres in length, and construction of 90 bridges.

c. Sanitation : 926 million baht or 14 per cent of the total expenditures for local development will be spent for this project. Out of this figure, approximately 21 million baht will be allocated from central government budget and the residual will be paid from local governments' own revenues.

d. Public health : Expenditures for the development of public health will amount to 579 million baht or 9 per cent of total expenditures for local development. Of this amount thirty million baht will be a subsidy from the central government budget to help improve the existing municipal hospitals, health centres, and 110 sanitary districts.

e. Waterworks and provision of water : Expenditures for this project are approximately 182 million baht, or 3 per cent of total expenditures for local development. Of this amount six million baht will be a subsidy from the Government budget to help improve and construct artesian wells in sanitary districts.

f. Other development : Other development expenditures, namely occupational promotion, community improvements, fire prevention, electricity, and development of municipal administration will amount to 1,513 million baht or 23 per cent of total expenditure for local development. Approximately 555 million baht out of this figure will be a subsidy from the central government budget.

Comparing the budget for local development by type of expenditure in the Third Plan period with that in the Second Plan period, it is seen that expenditure for development of education has increased from 17 per cent to 19 per cent; transportation and drainage from 17 to 32 per cent; town sanitation stayed constant at 14 per cent; public health from 7 per cent to 9 per cent; waterworks and provision of water remaining constant at 3 per cent; but other development expenditures have decreased from 32 per cent to 23 per cent of the total of expenditures for local development.

Public Health

The Planning for public health development in the Third Plan is aimed at solving problems which have arisen during the previous Plan and are expected to be prevalent in the future. These are problems of a technical nature regarding the cure of diseases and of an administrative nature arising from the shortage of doctors and nurses, the difficulties in cooperation and coordination of activities, and the assignment of personnel to the rural areas. Others are direct public health problems, which are increasingly serious due to the increase of population, the lack of basic public health education and knowledge among the people, and environmental conditions arising from the rapid pace of development.

Policies

The policies for public health development during the Third Plan are to give special emphasis to the following areas :

a. Mother and Child Care;

b. Family Planning;

c. Communicable Disease Control and Eradication;
d. Improvement and Expansion of Medical Care;
e. Development of Environmental Health;
f. Integrated Health Services;
g. Solving Problems of Personnel Shortage;
h. Public Participation in Community Psychology and Mental Health.

Development Strategies

1. Mother and child care : Emphasis will be given to prenatal and postnatal care for mother and child, and nutrition programmes especially for pre-school children.

2. Family planning : Services in family planning will be aimed primarily at the low income groups who have many children. The target is to reduce the growth rate of population to 2.5 per cent by 1976.

3. Control and eradication of communicable diseases : It is planned to undertake epidemiological programmes and to improve laboratory work on diseases. These activities will also be extended to the provincial level.

4. Medical care : Medical care will be improved quantitatively and qualitatively. Standards for provincial hospitals will be set so that provincial hospitals can be improved nationwide. The role of first class health centres is to be expanded to relieve the heavy burden on the provincial hospitals.

5. Development of environmental health : During the Third Plan period, the development of environmental health will be carried out largely by the concerned agencies, e.g. the control of water pollution by factories will be the responsibility of the Ministry of Industry, Ministry of Public Health and Municipalities. Control of air pollution will be undertaken in the Plan period. The present laws, which make it difficult for public health officers to enforce regulations, will be revised.

6. Integrated health services : To coordinate all special public health activities through the expansion of services in health centres, which will save resources and utilize personnel effectively, and to widen the disease prevention work of health centres.

7. Solving of personnel shortage problem : This is a very grave problem in public health development. It can be solved by the provision of scholarships and accelerating the training of personnel below the doctor level, such as nurses, midwives, public health officers, dental officers, etc.

8. Community psychology and mental health : To encourage the expansion of mental health education activities by integrating the various health education projects with different mass communications media.

Main Targets

1. Provision of manpower : The number of doctors will be increased by 1,850. Of these, some 500 will be working in the Ministry of Health, 400 of whom are scholarship doctors. The number of nurses will be increased by 7,595, half of whom will be working in the Ministry of Health. Nurses aides and midwives will be increased by 8,200, about 90 per cent of whom are supplied by the Ministry of Health and will mostly be working in the various provincial hospitals and health centres.

2. Number of beds : The total number of hospital beds will be increased by 10,500, of which 7,700 will be in general hospitals; 2,000 in specialized hospitals, e.g. mental health hospital, hospital for addicts, etc. and 800 in health centres.

3. Number of health centres : The number of special health centres will be increased by four. There will be 80 additional first class centres, 1,276 additional second class centres; and 1,000 additional midwife clinics.

4. Hospitals : A large scale hospital will be constructed in the vicinity of Bangkok, and some urgently required district hospitals will also be constructed.

5. Provision of drinking water : 400 medium - sized village waterworks, 7,500 small scale waterworks and school waterworks will be built. Also water sources for 7,500 newly opened health development villages will be provided.

Main Health Development Projects

1. Improvement and expansion of health centres project : This project is concerned with the improvement of medical treatment and disease control. The number of officers will be increased sufficiently to meet the increased volume of work. One first class health centre will care for 50,000 people, while second class health centre and midwife clinics will act as supporting units. It is estimated that by the end of the Third Plan there will be around 300 special and first class health centres able to serve 15 million people.

2. Family planning project : Family planning will be extended to 2.6 million people by the various service units, namely by 100 hospitals and all 4,000 of the special health centres, first and second class health centres and midwife clinics. As a result, the rate of population growth will be reduced by not less than 0.5 per cent, not counting the private sector efforts in this area.

3. Mother and child care project : To improve two mother and child care centres, to extend obstretric services and to provide care for mother and child during prenatal and postnatal periods in order to reduce the infant mortality rate which is rather high at this time. This project will also assist the family planning project and midwife project.

4. Rural nutrition project : To solve the nutrition problem of children in the rural areas, special emphasis will be given to pre - school children whose physical and mental health are most strongly influenced by nutrition. One hundred pre-school child centres will be established in areas where they are needed. Pilot school luncheon programmes in the rural areas will be introduced.

5. The provision of potable water project : The object of this project is to relieve the drinking water shortage in the rural areas and to prevent river fluke and various diseases communicated though impure water. It is expected that at the end of the Third Plan, clean water for household consumption can be provided to an additional 8,000 villages.

6. Rural health development project : The aim is to improve the basic sanitary conditions, particularly in the rural areas, by the creation of health development villages, by the construction of small waterworks, e.g. school waterworks, and the introduction of proper lavatories. During the Third Plan period it is expected that 7,500 health development villages will be opened up.

7. Malaria eradication project : During the Third Plan the scope of work will be more carefully defined and emphasis will be given to high mortality and high - infection areas. The work plans for some areas will be integrated into those of health centres to save budget resources.

8. Provincial hospital improvement project : To improve 14 central hospitals and 70 general hospitals by increasing the number of beds, officers and improvement of medical inspection.

9. Personnel supply project : This is to meet the inadequacy of personnel below doctor levelby training more nurses, nurses aides, scientists, medical technicians, and other specialized staff. It is expected that the number of various personnel receiving training will be about twice that of the Second Plan.

Education

The objectives and policies of education development during the Third Plan period are in conformity with the educational development efforts during the First and Second Plans. Education is aimed at bringing about social betterment and to promote economic and social development. The Third Plan puts emphasis on investment in human resources to produce enough qualified and skilled manpower to meet the demands of the country, while school children will be indoctrinated in ethics and moral standards. The Third Plan also emphasizes preparation of the population to move the country onwards to the modern age of science and technology. Earnest efforts will be made to improve quality as well as efficiency.

The objectives of education development in the Third Plan are :

1. To administer in a most economical manner education at all levels, so that it can provide the greatest benefits to society and can be extended sufficiently to absorb all young people, particularly at the compulsory education level.
2. To promote coordination among Government agencies involved in education administration.
3. To synchronize education with economic and social requirements.

Main Targets and Projects

The trend of investment in education during the Third Plan differs from the Second Plan as follows :

1. Primary Level : The emphasis on primary education is to upgrade the quality of teaching and learning; the aim is to lower the rate of school leaving and class repetition particularly at the Prathom 1 level. The main projects are to train a sufficient number of teachers for the remote rural areas and to supply free text books for poor students. It is expected that 6 million copies of text books can be distributed during the Third Plan period. By the end of the Third Plan it is forecast that there will be 5,744,300 lower primary level (P. 1 - P. 4) students, an increase of 18.24 per cent over the end of the Second Plan.

As for higher primary level (Prathom 5 - 7), expansion will be made where there is the greatest need. According to the target, the rate of students who go on studying in Prathom 5 will increase over the present level of 32 per cent to 50 per cent at the end of the Third Plan. It is expected that by the end of the Plan there will be 1,542,600 high primary level student in the Government's public schools, an increase of 78.75 per cent from the present rate. Emphasis will be on training sufficiently qualified high certificate teachers for this level of education.

2. Secondary level-accademic stream (MS. 1 - MS. 5) : Apart from accelerating the improvement of twenty comprehensive secondary schools established under the loan project during the Second Plan, emphasis will be placed on improving the quality of secondary education in the rural areas by establishing secondary schools in the central provinces which will be able to absorb rural students who otherwise would go to study in the metropolitan area. A total of 198 rural secondary schools will be specially improved by using an extensive curriculum similar to that of the former comprehensive secondary schools. Secondary level education will be expanded into the 180 amphoes which are, as yet, without a secondary school. It is expected that by the end of the Third Plan, 523,200 MS. 1 - MS. 3 students will be enrolled in the public schools. This is an increase of 102.71 per cent from the present number. About

78,100 students will enroll in MS. 4 - MS. 5 public schools; an increase of 133.83 per cent from the present. In addition, it is expected that private schools can absorb 55,400 more secondary level students, an increase of 22.45 per cent from the present number. A private school teachers training centre will be established to improve the quality of private school teachers.

3. Secondary level - vocational stream : During the Third Plan efforts will be made to improve the 25 agricultural and industrial vocational schools which were financed under the World Bank loan project during the Second Plan. Another 15 agricultural and industrial vocational schools will also be selected for further improvement to meet required standards. This will be carried out with foreign assistance. It is expected that during the Third Plan period the number of vocational stream, lower secondary level students will decrease since they will be combined with the changwat secondary comprehensive schools. The higher secondary level vocational schools of the Department of Vocational Education can take 74, 800 students or an increase of 26.35 per cent from the present number.

4. Higher level-vocational education : At the end of the Third Plan, the enrollment of higher level vocational students of all branches will reach 22,200 students, or an increase of 55.24 per cent from the present level. Emphasis will be given to improvement of the quality of provincial technical colleges.

5. Teacher training level : Teacher training in the vocational stream, according to the Third Plan, is to reach 4,500 students or an increase of 87.50 per cent from the end of the Second Plan. Of this number, some started training abroad financed under loan projects of the Second Plan.

Training for teachers at the bachelor's degree level, the higher certificate level and certificate level will reach 80,000 students by the end of the Third Plan. This includes 43,000 students at the certificate level, 26,000 students at the higher certificate level and 11,000 students at the bachelor's degree level. This excludes the non - degrees students who study for improvement of their teaching qualifications.

6. University level : The nine universities in the country are to increase the present 45,100 university students to 63,520 by the end of the Third Plan, representing an increase of 40.83 per cent. The increases will be in the fields of medicine, agriculture, engineering, sciences, and education. The budget will be aimed largely towards the upgrading of universities. Kasetsart University will start its World Bank loan project at the beginning of the Third Plan. Ram Kam Haeng University will be able to absorb about 40,000 students annually.

King Mongkut Institute of Technology will be training middle and high level manpower. It is expected that at the end of the Third Plan, the Institute with its three branches-the Northern Bangkok Technical College, the Thon buri Technical College and the Nonthaburi Technical College—will be able to train technical graduates, including technical teachers and instructors. The number of students will then be 3,800, or 52 per cent higher than the present number.

7. Adult education, special education and out-of-school training : Adult education programmes will be closely coordinated to provide vocational training at all levels. The Community Development Department Youth Training Centre will be planned with an emphasis on vocational training in agriculture, cottage industry and improvement of various short - term training courses. It is expected that there will be 237,500 persons under this training programme or twice the number reached during the Second Plan.

Education development in the Third Plan is to achieve the following objectives.

a. To improve and to expand compulsory education. The provision of education in special rural areas will be emphasized. Higher primary level education will be upgraded and expanded where necessary. This includes increased training in agriculture as part of the curriculum.

b. To promote education in sciences and technology, particularly at the secondary, vocational and university level. Provincial secondary education will be expanded and improved.

c. To expand teacher training for all levels of education, particularly higher certificate teacher training.

d. To promote adult education and other out-of-school training programmes, so that youths who have left school can still have occupational training, particularly in agriculture and handicraft.

e. To promote family planning programmes to reduce eventually the population of school age, and to promote health programmes and rural nutrition programmes for school children in order to improve the quality of human resources.

CHAPTER 2

ECONOMIC DEVELOPMENT OBJECTIVES AND POLICIES

Economic and Social Development during the Second Plan period

During the Second Plan period, 1967 - 1971, the Government set major economic and social development objectives as follows :

1. To pool human resources, natural resources and capital for development, the fruits of which were to be distributed equitably to the people.
2. To promote and to maintain social justice so that a free and stable society would prevail.
3. To maintain economic, monetary and fiscal stability.
4. To insure the requirements of national security could be met.

In order to achieve the above objectives, the Government has implemented development projects which were either continuations of projects initiated during the First Plan or projects newly initiated during the Second Plan. Allocation of resources among public sector projects was on the basis of which would contribute the most to national development.

The overall economic results of the Second Plan can be summarized as follows :

1. The average annual growth rate of gross national product was 7.2 per cent as against the target rate of 8.5 per cent in the Plan. The changes in the major economic indicators are shown in Table 2 — 1

Table 2 - 1

The Changes in Some Main Economic Factors 1967 — 1971

(Percent change)

	1967 — 1969	1970 — 1971	1967 — 1971
1. The growth rate of GNP	8.0	6.0	7.2
2. The changes in international reserves (billion baht)	+ 0.8	—3.9	—3.1
3. The rate of increase in revenue taxation	13.5	3.7	9.6
4. The rate of increase in national defence spendings	14.9	16.3	15.6
5. The rate of increase in development expenditure	19.0	9.9	15.0

2. Although the rate of growth of gross national product was 7.2 per cent, which was under the target rate of 8.5 per cent, most of the public sector projects have, by and large, met their targets and work plans. These public sectors projects were largely infra-structure construction projects, which laid down a solid foundation for private sector development in the future. However, towards the end of the Second Plan period, agricultural development was interrupted due to drought and changes in world demand for agricultural commodities.

Economic Development Achievement During 1967 - 1969

From Table 2—1, it can be seen that the overall economic changes could be broken down into two main periods. During the first period, covering 1967 - 1969, the whole economic system was progressing at a fast rate, accompanied by a favourable balance of payments. There were many reasons for this: expansion of private sector investment, particularly in industries; foreign investment; the increasing income from tourism. Moreover, the United States military expenditures in Thailand during this period also contributed to the expansion of the economy. However, economic expansion also led to a rapid increase of the demand for goods and services, and, in order to counter any inflationary tendencies, imports were allowed at higher levels while merchandise exports declined due to drought in 1967 - 1968. Nevertheless, during 1967 - 1968 the expansion of foreign investment and the expansion of United States military expenditures in Thailand more than compensated for the unfavourable balance of trade, making possible the 1,762 million baht increase in international reserves during the period. In 1969 earnings from exports declined due to the changes in world demand for our main export items, i.e. rice, rubber and tin. This, coupled with the decline in United States military expenditures, resulted in the balance of payments running a deficit of 998 billion baht in 1969.

Economic Development Achievement during 1970 - 1971

During the last two years of the Second Plan, i.e. 1970 - 1971, the balance of payments remained in deficit. This was due to the slow increase of export earnings and the decrease of United States military expenditures in Thailand. As a result, the earnings of exporters were lowered, the demand for goods and services in the country did not increase as it should have, the level of inventory increased and the rate of growth of national income fell. At the same time the political situation in neighbouring countries and the internal security problem became more complex, resulting in substantial increases in the national defence budget. Simultaneously, Government revenue and taxation were affected due to the declining rate of growth of national income. As a result, development expenditure for this period increased at a lower rate.

Apart from the economic development and stability objectives, the Second Plan also intended to spread the fruits of economic development to the people and to maintain social justice. This objective should be considered both as an economic and a social objective, not just a growth and stability objective. Although statistical support is not fully available, the evaluation of this aspect of the economic and social development objectives is as follows :

1. Income distribution : One main economic policy stated in the Second Plan was " To spread the fruits of development to the rural people in all regions, particularly the remote rural areas ". However, development efforts in the rural areas were not completely successful largely for two reasons :

a. Government projects in rural development lacked details at the local level and coordination among various implementing agencies. However, as the development base in the rural areas is very weak, the Government's development efforts during the Second Plan period were aimed at carrying out basic infrastructure programmes.

b. At the beginning of the Second Plan period agricultural production was set back due to drought, and the income of the agricultural sector also declined due to changes in world demand for Thai agricultural products. As a result, the effort to improve the income distribution was adversely affected, because agricultural production is the prime source of income of the rural population. Thus, when value added of the agricultural sector was increasing at a lower rate, development in the rural areas was also progressing at a lower rate. Moreover, those rural areas which formerly received income from United States military expenditures were also affected by their reduction.

2. The distribution of public utilities. In order to raise the standard of living of the people even distribution of basic public utilities, e.g. electricity, water supply, roads, education, public health and public welfare, is very important. During the Second Plan period the Government made great efforts to increase the supply of public utilities in the rural areas, particularly roads and electricity which are basic for rural development. Tremendous progress has been made in these areas. However, the Government could not fully supply the demand for these public services, particularly in remote rural areas. As a result the living conditions of the people in various regions still greatly differ.

3. Population pressure. One method of raising the standard of living of the people is to encourage family planning. During the Second Plan period Government activity in the area of family planning was very limited and not widely available to the rural people. The population growth rate of over 3 per cent aggravated the problem of raising the income and living standards of rural people. In response, the Government laid down definite policies for family planning towards the end of the Second Plan.

4. Employment. The slow – down of the economy and of the demand for goods and services at the end of the Second Plan period greatly hampered production and employment, particularly employment in urban areas. The reduction of employment would necessarily cause social and political unrest which must be solved in the first part of the Third Plan period.

The Objectives of the Third Economic and Social Development Plan

The above evaluation indicates that the Government has tried to fulfill the four development objectives set in the Second Plan. Some objectives, e.g. the maintenance of price stability and national security, have been successfully accomplished during the Second Plan period. Other objectives require greater efforts and more precise formulation to fulfill them. The Third Economic and Social Development Plan, therefore, sets down eight objectives for economic and social development as follows :

1. To promote national security. National security is closely linked with economic development. and neither can be neglected without jeopardizing the other. Without national security, economic development is aimless. By the same token, if economic development is not successful, national security cannot be maintained.

2. To overcome the economic slow - down and to increase national income in keeping with the availability of national resources. It is clear that during the Third Plan period Thailand will face many economic problems. The main objective is to solve quickly the immediate economic problems. By so doing, national income will be raised by fuller utilization of existing economic resources.

3. To solve the balance of payments problem. Financial stability is of prime importance in building up overall economic power. Solution of the balance of payments problem so as to maintain a minimum reserve level is a primary objective. This is a necessary condition for achievement of rapid growth during the Third Plan and in the future.

4. To maintain economic stability. An economic system aiming at a continuous high rate of growth must have price stability and balance between production and market demand. For this reason, the maintenance of economic stability is a prime condition for rapid economic growth.

5. To raise the income and living standard of the rural people in various regions. The growth of the economic system depends largely on the economic power of the majority of people who live in the rural areas. To spread evenly the fruits of development, the income of rural people must be raised. This is an important objective that must be attained as rapidly as possible.

6. To increase public services to satisfy the requirements of the population. One of the main functions of the Government is to provide public services. The Third National Plan has as an objective to accelerate the provision of public services, particularly social, for the whole population.

7. To reduce the growth rate of population. The economic condition of a family depends on two main factors: the ability to earn and the size of the family. During the Third Plan period the Government will provide services for family planning to those people who desire to utilize them.

8. To raise the level of employment. The yearly increase in population makes it necessary for the economy to grow rapidly in order to increase employment opportunities for the people of working age, both in the urban and rural areas. The Third Plan has as an objective to prevent the development of unemployment which may lead to economic and political unrest. The level of employment is to be maintained at the highest level possible.

Policies for Economic and Social Development

In order to achieve the above eight objectives, the Government set the following policies for economic and social development during the Third Plan period :

1. Improve the production structure of the economy to meet market demand. To solve the economic problems during the Third Plan period, it is necessary to improve the production structure of the economy to satisfy market demands. However, the improvement of the production structure requires not only economic measures and revisions of law and regulations, but also time. Hence, in the next 2-3 years. before the improvement of the production structure will bear results, the Government must take immediate short - term measures to raise the income of the people as much as possible while maintaining economic stability. Moreover, the Government has to prepare other long - term measures so as to succeed in improving the production structure during the Third Plan period.

2. Promote exports and improve import structure. The main policies to solve the balance of payments problem may be divided into two categories :

a. Promote Exports. In the short run export promotion can be achieved by reduction of production costs so that Thai products become more competitive in world markets. At the same time, long-term measures to improve the production structure or pattern to comply with markets demand will be taken to increase the volume and value of exports, particularly by the end of the Third Plan.

b. Improve import structure. The main policy for this is to switch the demand for goods and services from those produced abroad to those produced locally. This can be done through fiscal and trading measures.

3. Promote economic stability through proper monetary and fiscal policies.

To maintain economic stability is one of the primary objectives of national development. Therefore, monetary and fiscal policies will be properly used to achieve the economic development and stability objectives. Various tax measures and the direction of Government spending will be such that they increase social justice. During the early period of the Third Plan, when the economy is being readjusted, Government spending will be maintained at not too high a level so that economic stability, in terms of internal price and balance of payments stability, would not be hampered. Economic stability also requires a private sector policy which is discussed in the next section.

4. Promote private sector's and Thai people's role in the economy. It is the Government's function to provide the basic infra-structure, necessary services and support for the private sector's role within the overall national framework of the democratic system. Any enterprise which can be profitably established by the private sector, without endangering national security and stability, will be supported by the

Government through the provision of services and facilities. The Government will promote private investment in various activities which are beneficial to the national economy and which provide necessary factors of production, e.g. credit. Foreign investment is still necessary for national growth and must be supported by the Government. The Government will encourage the Thai people to play a greater role or hold a larger share in industries with foreign investment, particularly basic industries or security oriented industries.

In order to maintain national sovereignty and freedom, both economic and political, it is necessary for the Government to prevent foreign domination either directly or indirectly over certain industries.

5. Promote a better income distribution. The Government plans to promote agricultural production and to carry out programmes which utilize the rural labour force. Industries will be encouraged in the rural areas so as to increase rural income. The Government also plans to help rural people in the area of family planning and to relieve the tax burden on producers in the rural area. These are basic measures to achieve a more equitable income distribution. Moreover, the Government intends to carry out regional and provincial planning for all regions and all provinces so that they would conform to and support the National Plan's targets, the result of which will be to yield the greatest returns to the rural people in the most efficient manner.

6. Distribute development efforts for social equity. The remote rural areas have an insufficient supply of most public services. The Third Plan, apart from promoting the construction of transportation systems linking the remote rural areas, has the intention to expand regional and rural development; emphasis will be given to agriculture and marketing to increase farmers' income and to improve their social condition, particularly in the areas of education, public health, and public utilities which are the basic elements of growth and social welfare. The Government's social programmes are to reach both those in the remote rural areas and all those who have low incomes, including the urban and metropolitan areas.

7. Family Planning. The high birth rate is an obstacle to economic and social development. It increases the Government's financial burden for the provision of education, public health and public utilities. The high birth rate also affects the living conditions of the poor and the quality of manpower. The Third Plan, therefore, has a policy to encourage family planning, in order to slow down the birth rate. This will enable the uneducated and the poor to free themselves from the economic burden of a family larger than wanted.

8. Promote education and training. For the sake of both present and future welfare the Government plans to expand elementary education to meet the increasing size of the population. Youth in both urban and rural areas who have left school but are under working age, will be trained in various Government occupational training programmes to prepare themselves for future participation in the labour force. At higher levels of education there will be improvement, both qualitatively and quantitatively Emphasis will be given to the training of manpower for which there is a high economic and social demand.

9. Employment. For the expanding labour force, during the Third Plan period, the Government's policy is to expand economic activities in the metropolitan and rural areas fast enough to absorb the increases. The Government will take measures to initiate labour-intensive development programmes to reduce unemployment which is economically, socially and politically harmful to the nation.

The above nine policies are the main overall policies of the Third Plan. Policies for various economic and social sectors are discussed in the relevant chapters.

CHAPTER 3

PLANNED ECONOMIC STRUCTURE AND TARGETS

Economic and social development during the Third National Economic and Social Development Plan (1972 - 1976) will proceed according to the objectives and policies specified in Chapter 2. The detailed overall targets are as follows :

1. To increase the ~~gross~~ domestic product at an average rate of 7 per cent per annum, compared with 8.1 and 7.2 per cent during the First Plan and the Second Plan respectively. Even though the rate of growth is lower than in the two Plans, the growth rate of population will be reduced to 2.5 per cent by 1976. Therefore in 1976 per capita output is expected to be increasing at 4.5 per cent, compared with an average of 4.0 per cent during the Second Plan.

2. To maintain economic stability, especially in the price level, and equilibrium between production and market demand so as to strengthen the economy.

To achieve the above mentioned targets, it is desirable to improve the economic structure while at the same time improving social equity.

a. To emphasize agricultural development and public services in the rural area. This will help to improve income distribution.

b. To provide employment opportunities for the growing labour force and reduce unemployment problems both in urban and rural areas.

c. To improve only the economic structure may not be effective; it is also necessary to encourage social justice by means of certain social and regional development stategies the details of which will be developed in the following Chapters.

The overall economic targets are summarized as follows :

Production Targets

During the second half of the Second Plan, the level of domestic demand for goods and services increased at a lower rate than in the past years. To increase the growth rate requires increased exports and investment. In the present circumstances, effective short run measures to achieve the following are required :

1. To reduce the cost of production of existing merchandise exports in order to compete in international markets.

2. To promote some agricultural products the demand for which is strong, such as maize, soy bean, shrimp, coconut and livestock.

3. To promote production with low import content, but which utilize domestic raw materials and are labour intensive, for instance construction, agri - business, canned foods industry, etc.

As for the above measures, aimed at accelerating production by the end of the Third Plan, production corresponding to expected market demands will be promoted. Emphasis will be placed on the promotion of new export products and industrial products using domestically produced raw materials and labour.

With this emphasis on the production strategy, it is expected that the gross domestic product during the Third Plan will increase at an average annual growth rate of 7 per cent. During the first half of the Plan the rate of growth will increase at a rate lower than the average due to the fact that new types of production cannot be achieved in the short run. After the economy has adjusted, by the second half of the Plan, the rate of growth will accelerate.

TABLE 3-1

Gross Domestic Product Targets

(At 1962 Prices)

(billion baht)

Sectors	1971 Estimated		1976 Targets		Average Annual Growth Rate	
	GDP	% Dist.	GDP	% Dist.	1967-1971	1972-1976
1. Agriculture	37.3	29.5	47.8	26.8	4.1	5.1
1.1 Crops	26.0	20.5	32.5	18.2	2.7	4.6
1.2 Livestock	3.9	3.1	4.7	2.6	2.4	3.4
1.3 Fisheries	4.3	3.4	6.9	3.9	17.3	10.0
1.4 Forestry	3.1	2.5	3.7	2.1	6.5	3.4
2. Mining & Quarrying	2.1	1.7	2.8	1.6	8.3	6.0
3. Industry	21.4	16.9	31.4	17.6	9.2	8.0
3.1 Traditional	6.5	5.2	8.3	4.6	5.1	4.8
3.2 Non-Traditional	14.8	11.7	23.1	13.0	11.4	9.2
4. Construction	8.4	6.6	11.7	6.6	8.4	6.5
5. Electricity & Water Supply	1.9	1.5	3.9	2.2	19.0	15.0
6. Transportation & Communications	8.6	6.8	11.5	6.5	7.5	6.0
7. Wholesale and Retail Trade	20.5	16.2	29.3	16.4	7.7	7.0
8. Banking, Insurance and Real Estate	5.1	4.1	11.0	6.2	14.4	15.0
9. Ownership of Dwellings	2.4	1.9	2.7	1.5	4.1	2.5
10. Public Administration and Defence	5.7	4.5	7.6	4.3	10.0	6.0
11. Services	13.0	10.3	18.5	10.3	8.8	7.0
Gross Domestic Product	126.4	100.0	178.2	100.0	7.2	7.0

Agricultural Production

The fluctuation of world market demand for rice, rubber, and jute during the second half of the Second Plan was a significant problem in agricultural development, influencing the Third Plan. The farmers must improve their productivity to offset price fluctuations. The basic target in agricultural development during the Plan period is to increase the productivity of paddy, rubber, tapioca, and jute in order to save land for other crops. Production targets have been determined on the basis of domestic and foreign demand.

Agricultural products with high growth rates during the Third Plan are as follows :

1. **Existing products with high demand.** Such as maize, sorghum, tapioca, kapok, and seed oil.

2. **High demand but with production problems.** Such as soy bean, coconut, shrimp, livestock, cotton, and tobacco.

Diversification of agricultural products is required. During the Plan period, the growth rate of agricultural production averages about 5.1 per cent as compared with 4.1 per cent during the Second Plan.

Mining Production

During the Plan period, it is expected that the growth rate of mining production will be about 6.0 per cent, as compared with 8.3 per cent during the Second Plan. There are two reasons: firstly, during the Second Plan mining production such as tin, fluorite and quarrying has increased at a high rate; but during the Plan period, quarrying will grow slowly due to the slow down of construction. Secondly, the market demand for tin ore cannot be expanded so, as a whole, mining production will increase at only 6.0 per cent.

Industry

The rate of growth of the manufacturing sector averaged 9.2 per cent during the Second Plan. But excess inventories developed because of the low growth rate of agregate demand. Thus many types of manufactured products face excess capacity. In addition, the expansion of industrial development has resulted in the increase of imported raw materials at an annual average of 13 per cent. Therefore the objective is to expand those industries which have export potential. Raw material oriented and labour intensive industry should be promoted. During the Plan period some industries, such as saw mills and rice mills, will increase at a lower rate than in the past. As a result even though new kinds of industry will expand rapidly, production as a whole will increase at an annual average of 8 per cent, a lower rate than that in the Senond Plan.

Construction

The construction sector of the economy expanded rapidly during the first half of the Second Plan. It is presently affected by the decrease of U.S. military expenditures in Thailand and the economic stagnation during the second half of the Second Plan, with the rate of growth of construction reduced to about 4.0 per cent per annum. As a raw material oriented and labour intensive industry, the construction target is set at an average annual rate of 6.5 per cent. Construction will be shifted from military purposes to ditches and dikes in irrigated areas, rural roads, and housing.

Other Production

During the Plan period, the average growth rate of other sectors of the economy will be lower than during the Second Plan. During the first half of the Plan the economic structure will be adjusted by means of suitable policy measures to maintain an adequate level of demand for goods and services.

Production Structure

The most significant target of the Third Plan is to strengthen the economic structure by means of acceleration of agricultural production at a higher rate than in the Second Plan. As to manufacturing production and infra-structure which expanded rapidly during the first half of the Second Plan, the growth rate will slow down. To sum up, the economic system will change to provide a better distribution of the benefits of development to all regions.

Balance of Payments Target

During the period 1969 - 1971, the balance of payments deficit totalled 4,970 million baht and it is expected to continue during the Third Plan. The balance of payments target is to achieve an equilibrium while maintaining foreign exchange reserves at the desired level. To attain the objective, it is required to implement all measures simultaneously. The strategy is to limit the deficit in the trade balance as much as possible. Consequently, merchandise exports and imports targets are set in order to maintain international reserves at the desired level.

TABLE 3-2
Balance of Payments
1971—1976

(billion baht)

	1971	1976
1. Merchandise		
1.1 Exports	16.1	22.5
1.2 Imports	26.4	30.3
Trade Balance	—10.3	—7.8
2. Services		
2.1 Exports	8.4	6.7
2.2 Imports	3.9	6.1
Service Balance	4.5	0.6
Current Account	—5.8	--7.2
3. Transfer payments (net)	0.9	1.3
4. Capital movements (net)	2.4	4.3
4.1 Private	2.1	2.0
4.2 Official	0.3	2.3
5. Errors and Omissions[1/]	1.1	1.1
6. International reserves movements	—1.4	—0.5

[1/] Including SDR

Export Targets

Export acceleration faces the difficulty of declining demand for rice and rubber. Diversification of agricultural and industrial exports are required to meet the changing international market situation. But shifting the pattern of production can be done only over a considerable period of time. Thus it is expected that the value of exports will increase at a higher rate in the second half of the Plan. The export target is for a rate of growth of 7.0 per cent. This is to be reached by a combination of export measures and acceleration of production as described in the relevant Chapters.

Agricultural Products

Rice, which is the most important export of the country, does not face a bright market situation for the foreseeable future owing to the decline of world market demand. In order to establish the agricultural production target, exportable commodities and expected export diversification are taken into consideration. Production and export targets are as follows :

1. In the first half of the Plan, agricultural commodities, which are traditionally grown, for which enough research has been done, extension work established and have developed markets, will be increased for export. These commodities are maize, oil seed, tapioca and jute whose export value can be increased in the short run in order to substitute for the lost income from rice.

2. Measures are needed to accelerate production of commodities which have high market demand but production of which is not sufficient or which have high production cost. The results of such measures will be very important in the second half of the Plan. These commodities are shrimp, livestock, soy bean, cotton and tobacco.

Industrial Products

The value of manufactured exports has been very small. In 1962 the value was only 624 million baht, or 4 per cent of total export value. In the second half of the Second Plan, export value of manufactured products increased at a high rate. Foreign exchange can be earned by replacing by manufactured products the agricultural commodities which face difficulties in market demand and price. Export promotion in manufacturing is one of the vital policies during the Plan period. Manufacturing export target in 1976 is 2,720 million baht. The strategies to achieve this are as follows :

1. To promote industries which can produce more than domestic requirements and consequently have a surplus for export. These commodities are gunny bag, cement, thread, clothes, sugar, construction materials, tires and edible oils. More could be exported in the short run as the capacity is sufficient, but the cost of production is too high to compete in the international market.

2. To promote industries which are already producing export products. The cost of production should be lower in order to expand the market. These commodities are canned foods, garments, watch parts, furniture, woods products, wigs and handicrafts.

Import Targets

With successful implementation of the above mentioned export acceleration strategies, a greatly increased amount of foreign exchange can be earned. When the present economic situation is reviewed, it is found that the export measures alone are not sufficient to remedy the balance of payments situation in accordance with the planned targets. Therefore measures to adjust the import structure are necessary during the Plan period. In 1970 the total value of imports was 19 per cent of gross domestic product, or approximately 12,258 million baht more than the value of merchandise exports. Import policy is to minimize the increase of imports so as to maintain international reserves at a suitable level. It will reduce the value of imports, and meanwhile, will stimulate domestic production by means of more investment.

Targets for implementation are as follows :

1. To promote import substitution industries. During the period 1969 - 1970, the rate of growth of imports was very high, especially raw materials which increased at an average rate of 15.2 per cent. Some kinds of raw materials can be domestically produced, or will be produced in the future. These are cotton, tobacco, pulp, iron, ore and dairy products. Through acceleration of production of these commodities the value of imports that otherwise would be necessary can be reduced. In addition it will stimulate domestic production, employment and income.

2. To reduce imports of luxury goods. Imports of luxury finished goods, which can be domestically produced, of good quality and at a reasonable price, should be restricted by tariffs. Quantitative controls will be imposed if necessary.

As a consequence of the above mentioned measures, the value of imports will increase at an average rate 2.8 per cent per annum over the Plan period. The resulting balance of payments position will be satisfactory by the second half of the Third Plan.

Economic Stability

The maintenance of economic stability, especially the price level, is one of the vital foundations of economic growth. Over the Plan period the Government will maintain stable prices by controlling the expenditure level so that it correspond to the production target. Fiscal and monetary measures will be carried out, as described in the next chapter, so as to limit the growth of domestic expenditures to 7.5 per cent per annum. This rate is consistent with the production target of 7.0 per cent, and implies that the increase of the price level will be limited over the Plan period. Table 3.3 shows the Gross Domestic Expenditure Target.

TABLE 3-3

Gross Domestic Expenditure

(billion baht)

	1966	1970	Average Annual Growth Rate (1967—1971)	1976	Average Annual Growth Rate (1972—1976)
Public Sector					
Consumption	9.3	16.9	14.8	24.7	6.1
Investment	6.7	10.0	9.1	15.5	8.5
Sub-Total	16.0	26.9	12.4	40.2	7.0
Private Sector					
Consumption	66.7	93.9	7.8	140.4	7.1
Investment	13.6	20.5	10.4	30.5	7.3
Sub-Total	80.3	114.4	8.3	170.9	7.2
Foreign Sector					
Exports	19.3	22.1	3.8	28.7	4.4
Imports	19.7	—29.3	8.2	—34.0	3.3
Sub-Total	—0.4	— 7.2	—	— 5.3	—
Gross Domestic Expenditure	95.9	134.1	8.1	205.8	7.5

On the external side, even though during the first half of the Third Plan the balance of payments deficit will continue, the situation will be improved during the second half by the above mentioned economic measures. It is expected that the recovery of the economy and the adjustment of the balance of payments will be achieved within the planned period of time.

Private Expenditure

In the projection of private expenditures, the consequences of fiscal and monetary measures are taken into account. The highlights are summarized as follows :

1. Consumption. Private consumption increased at a rate of 7.8 per cent per annum during the Second Plan. As a consequence of the increase in the U.S. military expenditures, some groups of people received unusually high incomes. Partly due to this, the increase in imports for consumption increased at a rate of 8 per cent per annum in 1967 - 1969. To attain the objective of improving the balance of payments, private consumption is projected to increase at the lower rate of 7.6 per cent during the Third Plan. The target can be achieved by raising tariffs in selected areas in order to reduce the consumption of imported luxury goods.

2. Investment. Private investment increased at an average annual rate of 10.4 per cent during the Second Plan. In 1967 - 1969, private investment rapidly expanded at 16 per cent per annum. But during the period 1970 - 1971 the growth rate appears to have dropped to about 2 per cent. In addition, the inventories of many kinds of products increased and production in some sectors was less than capacity. For this reason private investment during the Third Plan period should not increase at a rate as high as in the past. Expansion of investment at a high rate would induce large imports of capital goods. It would adversely affect the balance of payments and also existing domestic industries which are producing under capacity. The strategy of private investment has as a basic objective promotion of profitable industries, expanding existing efficient industries and promotion of private foreign investment. Consequently, private investment is expected to increase at an average annual growth rate of 7.3 per cent.

Public Expenditure

Planned public expenditure will be based on the development resources as explained in the next Chapter. Public investment will expand at 8.5 per cent annually, compared to 9.1 per cent in the Second Plan. The rate of growth of public consumption will average about 6.1 per cent per annum, compared to 14.8 per cent during the Second Plan.

Foreign Expenditure

The value of merchandise exports is expected to increase at 7.0 per cent per annum. But total value of exports, including services which is projected to decrease due to the decrease in the U.S. military expenditure, will increase at only 4.4 per cent annually. The value of merchandise and service imports will average 3.3 per cent.

Economic Measures

To attain the above mentioned objectives, the Government should have both short-term and long-term measures for implementation during the Plan period. Some measures are required in order to lay down a base for the next Plan. This is especially true of those measures designed to adjust the economic structure to the market situation as soon as possible.

1. The expansion of the rice market. As rice is still the main export of the country, the expansion of the market is essential. The measures are to cancel the rice premium and permit selling on the basis of long-term credit provided by the Government. The barter of rice for other commodities, which are needed and have reasonable prices should be considered. In addition, the Government should have political policies to encourage and expand international trade. These measures will expand sales of rice to foreign markets. Farmers will get more income and the economic slump will be eased.

2. The acceleration of agricultural productivity according to the Agricultural Development Plan. This includes seed multiplication for accelerated commodities such as maize, soy beans and coconut; the acceleration of production of shrimp, livestock, mulberry and silkworms, the improvement of irrigated agriculture and the provision of land for farmers. In addition, the Government will expand availability of required ancillary agricultural facilities, i.e. agricultural credit.

3. Improvement of industrial structure. The measures will follow the Industrial Development Plan, especially the establishment of industrial estates and provision of industrial loans. In addition, industrial development policy will concentrate on those industries which utilize indigenous raw materials and make intensive use of labour, and also promote those industries which can be established in provincial areas.

4. Promotion of housing project. This project will create more employment and production in the short run. Investment in housing is particularly favourable due to the fact that import requirements are lower than in most other forms of investment. The Government will promote private investment in housing; financial assistance from abroad is being considered.

5. Development and fuller utilization of natural resources. The development and utilization policies are concentrated on land, water, forestry, and minerals resources by means of surveys and introduction of efficient production processes which conserve natural resources.

For measures related to production it is essential that they correspond to the export promotion policy, which is explained in the section on measures to remedy the balance of payments deficit.

Measures to remedy the balance of payments deficit. Major measures are summarized as follows :

1. Export promotion measures :

a. In the early part of the Plan attention will be paid to existing export commodities. Tax measures will be considered in order to reduce the cost of production, resulting in the price of commodities becoming more competitive in foreign markets. Greater emphasis will be placed on diversification of exports and the improvement of internal marketing.

b. Private investment will be promoted in basic facilities such as silos and ports, so as to reduce the cost of transportation for exported commodities. The Government will improve international port facilities. Determination of the site for construction of a second international port and policies on freight charges for exported commodities will be made. The transport system will be improved so as to reduce transport costs and loss.

c. The study of export marketing will be extended. Laws and regulations which obstruct exporting will be removed.

2. Measures to adjust import structure:

a. Tax measures : Attention will be paid to direct taxes and the revision of some taxes so as to reduce the degree of income disparity . As a consequence consumption of the high income group will slow down. Due to the fact that the high income group consume imported goods ,tax revision along this line will reduce imports of luxury goods and save foreign exchange.

b. Import substitution : This measure is vital because it has two - sided effects: first the value of imports will be reduced; second, domestic production and income will increase simultaneously. Thus it is more fruitful than other measures. Some measure can only reduce the value of imports which helps the balance of payments in the short run. However, the import substitution measure will take a considerable period of time to be effective. It is expected that they will show results during the second half of the Plan. Domestic production of cotton, tobacco, pulp, iron ore and dairy products should be promoted. During the early period before the promotion efforts take effect, cotton and tobacco may be imported under the long term foreign loans programme, in order to lessen the balance of payments difficulties in the next few years.

c. Import reduction: The rate of growth of imported capital goods has averaged 10.3 per cent in 1968 - 1969. In 1970, domestic production was above demand or at levels under capacity, and so inventories increased. Meanwhile, the rate of increase of capital goods imported in 1970 fell to 1.0 per cent. This indicates that capital goods imports can be reduced if the existing machinery is run at full capacity. The Government will not permit the establishment of new capacity in industries which presently have excess productive capacity. New investments which bring benefits to the economy will be promoted, and particular attention will be directed to production processes which utilize domestic raw materials and labour. In addition, the Government will promulgate specific policies concerning imported intermediate goods, such as automobile assembly industry.

d. Import restriction: In case the balance of payments deficit is severe, quantitative controls may be required in addition to tariffs. If necessary, import of goods which can be supplied at satisfactory price, quality and quantity from domestic production, as well luxury goods will be prohibited. Measures to promote the use of domestic products will be promulgated.

3. Policy on services:

a. Measures relating to service receipts : Emphasis will be placed on tourism to be developed under a suitable plan. Activities which earn foreign exchange, i.e. air and sea transport services will be promoted.

b. Measures related to service payments : The outflow of foreign exchange will be restricted by means of tax measures. For instance foreign travel by persons of Thai nationality may be taxed.

Measures to maintain economic stability. The domestic price level will be controlled by keeping the growth rate of money supply at a level consistent with the rate of growth of the economy. Details are given in Chapter 4.

Coordination

To implement the above mentioned measures, it is necessary to have coordination among the Government departments and between the Government sector and the private sector. Improvement of Government administration on the basis of more businesslike procedures and more efficient management is essential. Such steps were undertaken during the Second Plan, namely personnel management and the establishment of the Committee on Policy Coordination. During the Plan period the Government will seek to improve this administration and coordination.

Long-term targets

To implement the Third Plan it is necessary not only to solve the short run problems but also to accelerate economic growth, especially the dissemination of the benefits of development to rural areas, the promotion of greater social justice and the continuation of economic stability.

1. The establishment of a stable economic situation : Agriculture will be the main sector of the economy for a considerable period of time. However, proper development of agriculture will require promotion of agro - business and the use of new production techniques. In addition, industry and agro - business will become more important both in domestic consumption and exports.

2. Coordination between public sector and private sector. Thailand has a free enterprise economy. The Government will set the broad policies and measures for development. Simultaneously, the private sector will have a role in the determination of such measures by clear articulation of its problems.

3. Rural development. When infra-structure projects and the development of existing facilities are effective, conditions in rural areas will improve. Urban and communtity development will be encouraged Farmers will be organized into groups and will have a greater role in development.

4. Population planning. Once the targets of this programme are achieved, more public services, especially education and public health, can be extended to the population. This will also reduce unemployment and per capita income will increase.

CHAPTER 4

FISCAL AND MONETARY ASPECTS

The implementation of fiscal and monetary policies during the past eight years, from 1961-1968, has played an important role in growth and economic stability. During this period, Thailand was able to maintain a high growth rate, together with rapid accumulation of foreign exchange reserves. This achievement resulted in a substantial rise in Government revenues which allowed the Government to allocate its expenditure to a wider range of activities without affecting stability. During this period the budget deficit has risen rapidly, but has, nevertheless, remained at acceptable levels. This is indicated by the moderate increase in the price level.

However, toward the end of the Second Plan a slight recession of the economy became evident and at the same time the balance of payments, for the first time in many years, was in deficit. These effects resulted in inadequate aggregate demand, which had repercussions on the fiscal situation as Government revenues from taxation increased only at the rate of 2.8 per cent in 1970, the lowest rate in the past ten years. The situation was further aggravated by the substantial rise in the budget allocated to defense and security, resulting in a reduction of the growth of development expenditures from 19.0 per cent per annum in 1967-1969 to only 9.9 per cent in 1970-1971.

Guidelines for Fiscal and Monetary Policies for the Third Plan.

Taking into consideration the economic situation prevailing at the end of the Second Plan, together with the prospect of the overall growth of the economy outlined in Chapter 3, the following fiscal and monetary policies will be implemented during the Third Plan :

1. Government Expenditure : The expansion of Government expenditures at the beginning of the Plan period will be at a somewhat moderate rate. This is due to the restructuring of the economy and also to the continuing draw down on the foreign exchange reserves. This measure will hold down the demand for goods and services, thus helping to check the rise of imports. However, in the latter part of the Plan period, when the economy is expected to grow at a more rapid rate, a faster expansion of Government expenditures is warranted.

2. Government Revenues : The slow growth rate of the Government revenues at the start of the Plan period is due to the slow down of the overall economy and the Government policy to attach relatively less importance to tax revenue from foreign trade in order to promote exports. Therefore, in order to compensate for the loss in tax revenues mentioned above, which historically have been a major source of Government income, the Government will improve the tax structure, not only from the standpoint of increasing revenue, but also to reduce social injustice and improve the balance of payments.

Apart from changing the tax structure and improving the tax base the Government will endeavour to mobilize its own resources within the public sector, especially from the state enterprises, for activities that will be beneficial to the overall economy.

3. Allocation of Government Expenditures : Although the rate of increase of Government revenues has declined, Government expenditures for the alleviation of the present economic situation, social development and defense continue to increase. This pressure from the increasing demands for Government resources further supports the necessity of increasing the efficient use of Government expenditures. In order to achieve this, the Government will put greater emphasis on the following priorities.

a. Accelerate production and expand exports of goods and services especially in agriculture and export industries.

b. Development of education, manpower, and development of scientific research and technology

c. Improve utilization and maintenance of existing infra-structure.

d. Emphasis on regional development and alleviation of urban problems by concentrating on urban and community development

e. Allocate adequate resources for maintaining national security.

Public Development Expenditure.

With the above mentioned guiding principles of resources allocation, public development expenditures for the Third Plan will be allocated strictly in line with the ability of the Government to raise its revenue. That is, budget allocation will be consistent with the changing fiscal and monetary condition. Money supply will not be allowed to expand in such a way that it will create harmful inflationary pressures, adding further to the balance of payments problem. Therefore, borrowing of domestic resources will have to be within limits so that the expansion of the money supply will not exceed 10 per cent per annum.

Thus, development expenditures will grow at 5.5 per cent per annum during the Third Plan period, a rate which is consistent with the prevailing economic and political conditions. However, the public development expenditures will have to be revised in accordance with the requirements of the changing economic situation. The total public development expenditures envisaged during the Third Plan period will be 100,275 million baht, consisting of 69,500 million baht under the central government budget, 13,845 million baht from the self-financing of the state enterprises and local government, and 16,930 million baht from foreign loans and grants. The public development expenditure of 100,275 million baht can be classified in detail as presented in Table 4-1 and Table 4-2.

Agriculture and Irrigation

Development expenditures for this sector from the Government budget will be 13,695 million baht or about 14.3 per cent of the total. Less importance will be given to allocation of resources to irrigation projects, since during the First and Second Plan periods a major portion of development expenditures had already been allocated to infra-structures programmes for dam and reservoirs construction. Nevertheless, greater emphasis will be given to the intensive development of agriculture within the irrigated areas where the construction of dams and reservoirs has already been completed. In addition to greater utilization of existing facilities mentioned, priority is given also to crop diversification. Such an approach will accelerate the production of priority crops to meet the needs of both the domestic and export markets.

Industry, Mining, Commerce and Services

The development expenditures of 2,350 million baht will be allocated to services for promoting and assisting the private sector to develop industrial and marketing activities. In addition priority is given to the survey and development of mining and other services in order to alleviate the balance of payments problem.

TABLE 4-1

Public Development Expenditures by Sectors and by Sources for the Third Plan

(million baht)

Sector	Govern't Budget	Foreign Loan	Foreign Grant	Self - financed by State Enpr. & Local Gov.	Total
Agriculture & Irrigation	11,620.0	1,165.0	850.0	60.0	13,695.0
Industry & Mining	510.0	—	200.0	770.0	1,480.0
Commerce & Services	170.0	—	—	700.0	870.0
Transportation & Communications	10,900.0 [1]	4,945.0	450.0	3,180.0 [2]	19,475.0
Power	1,970.0	2,655.0	150.0	3,100.0	7,875.0
Sub - Total	25,170.0	8,765.0	1,650.0	7,810.0	43,395.0
Social Welfare Development	2,350.0	—	350.0	—	2,700.0
Urban & Rural Development	5,280.0	2,505.0	1,110.0	6,035.0 [3]	15,080.0
Health	5,500.0	—	840.0	—	6,340.0
Education	31,200.0	660.0	1,050.0	—	32,910.0
Sub - Total	44,330.0	3,165.0	3,350.0	6,035.0	56,880.0
GRAND TOTAL	69,500.0	11,930.0	5,000.0	13,845.0	100,275.0

[1] Excluding reimbursement of loan for highways development project which is already included in the foreign loan source of 1,500 million baht.

[2] Including Postal Fund retained by the Post and Telegraph Department of 205 million baht.

[3] Including self-financed of Metropolitan Water Works Authority of 220 million baht.

Transport and Communications

The development expenditures allocated to this sector will amount to 19,475 million baht or about 18.4 per cent of total development expenditure, compared with 19.2 per cent during the Second Plan period. The decline in the share of development expenditures can be accounted for by the already sizeable amount of investment during the Second Plan period for infra-structure projects. The objective is, therefore, to concentrate the expenditures on projects and programmes that will be consistent with the overall objectives, especially the provision of services for export commodities by making the rural areas more accessible.

Power

Total power sector development expenditures will amount to 7,875 million baht. Emphasis will be given to the improvement of power supply and distribution to meet the nation's rising demand and to rural electrification in areas outside the jurisdiction of Electricity Generating Authority.

Education

The rise in total development expenditures in the education sector to 32,910 million baht is due to the continuing policy to emphasize education in order to raise the quality of the nation's human resources and stimulate progress. Two aspects of the educational development programme are the improvement of vocational education especially in the field of agriculture and the development of primary education. Further importance is also given to the out - of - school programmes and manpower training which will enhance economic productivity, by spreading the development programmes to the rural areas.

Public Health

Total development expenditures for this sector will amount to 6,340 million baht. The allocation of the expenditure will be directed towards improving the existing medical facilities and accelerating the training of medical personnel. Shortages of such trained manpower currently present serious problems. Another important objective is improving medical services in rural areas.

Urban and Rural Development

The Bangkok Metropolitan area and other large cities in the Kingdom will be allocated 14,930 million baht in development expenditures. Support will be given to the development of growth centres in various regions.

Social Development

Out of the 2,370 million baht development budget in the Third Plan, a broader spectrum of social development activities will be undertaken compared with the Second Plan total of 1,960 million baht.

Development Financing

It is envisaged that the total development expenditure of 100,275.0 million baht will be met from the following sources of financing.

Domestic Sources

1. Government Revenue : In 1970, the year when the pace of economic progress began to slow down, a decline in farmers income and the continuing balance of payments deficit resulted in only 2.8 per cent increase in the Government revenues compared with 13.5 per cent average increase during the 1967 - 1969 period. This slow growth rate of Government revenues was largely due to the slow - down of the overall economy. It has also been affected by the adjustment of the rice premium and fiscal actions, as is evident in many tax decrees announced by the Government during 1969 - 1970 in order to reduce the balance of payments deficit, improve farmers income and reduce the cost of living. These adjustments resulted in a smaller tax base, as well as a change in the tax structure, which decreased the relative importance of tax revenue from international trade.

2. Government Revenue and Surplus during the Third Plan Period : By taking into consideration the changing tax base and structure it is estimated that Government revenues will amount to 117,000 million baht during the Third Plan or equivalent to an average increase of 6.5 per cent annually.

3. Improvement of Tax Rate and System : The estimated 6.5 per cent average growth rate of Government revenues indicates explicitly that additional fiscal measures are necessary if development is to be sustained while maintaining financial stability. It is, therefore, desirable to improve the tax rate and system during the Third Plan period with the following guiding principles :

TABLE 4-2

Financing of Third Plan Development Expenditures

(miillon baht)

Source	Second Plan		Third Plan	
	Amount	%	Amount	%
1. Development Expenditures	57,520.0	100.0	100,275.0	100.0
2. Sources:				
2.1 Domestic sources:				
Revenue surplus	10,000.0	17.4	27,265.0	27.2
Self-financing of state enterprises and local government	6,345.0	11.0	13,845.0	13.8
Borrowing from Bank of Thailand	7,000.0	12.2	24,835.0	24.8
Borrowing from commercial banks	15,000.0	26.1	9,400.0	9.4
Treasury balances	3,575.0	6.2	8,000.0	8.0
Sub-Total	41,920.0	72.9	83,345.0	83.2
2.2 Foreign sources:				
Loans	10,600.0	18.4	11,930.0	11.9
Grants	5,000.0	8.7	5,000.0	4.9
Sub-Total	15,600.0	27.1	16.930.0	16.8
2.3 Grand total	57,520.0	100.0	100,275.0	100.0
2.4 Less estimated shortfalls 1/	—7,520.0	—13.0	—8,610.0	—8.6
2.5 Estimated actual development expenditures	50,000.0	86.0	91,665.0	91.4

1/ Shortfall is estimated on the basis that there will be a delay in the disbursement of the estimated Government budget, foreign loans and grants and self-financing of state enterprises and local government or changes which may occur during the Plan period,

TABLE 4-3

Government Revenues from Taxation and Others 1972-76

(million baht)

	Revenue 1972—76	Rate of Increase
Revenue from Taxation	106,100.0	6.8
Other Revenues	10,900.0	4.1
Total Government Revenue before Tax Improvement	117,000.0	6.5
Tax and Other Revenues Improvement	10,400.0	—
Total Government Revenue & Others after Improvement	127,000.0	—

1. Improve the efficiency of tax collection and administration.

2. Improve the tax base in order to compensate for the loss in tax revenues arising from international trade, which historically have been the major source of Government income, and to make available adequate funds for high priority projects.

3. Improve the system of tax structure not only from the standpoint of revenue alone, but also from that of social justice, such as direct tax, land tax and the decrease in tax rates for agricultural products so as to create incentives for export of these commodities as well as a more equitable income distribution.

The implementation of the above mentioned guiding principles will bring about 127,400 million baht of Government revenues during the Third Plan period or an average increase from 6.5 per cent to 8.2 per cent annually. However, this rate is substantially lower than that of the years 1967 - 1968. Nevertheless, the accuracy of this estimate depends very much on the future economic condition of Thailand.

Domestic Borrowing

During the years 1967 - 1970 out of 10,130 million baht total domestic borrowings, 5,740 million baht or about 56.7 per cent was provided by the Bank of Thailand, and the remainder came from the commercial banks, Government Savings Bank and other sources. However, in 1969 the commercial banks actually reduced their holdings of Government securities, and for the first time in several years the Bank of Thailand purchased a major portion of the securities amounting to 84.3 per cent of the total. During the same period the draw down of treasury balances became substantial; it decreased from 5,350 million baht in 1970 to 2,700 million baht in 1971. This pattern of a steadily rising cash deficit, together with rapid draw down of treasury balances, indicates that the Government's fiscal policy contributed to the expansion of the money supply towards the end of the Second Plan period. As for the Third Plan, domestic borrowing will continue to be a major source of resources for the Government since there is a persistent demand for budget resources and income from taxation is not expected to increase very rapidly, particularly in the present depressed condition of the economy. It is, therefore, essential that domestic borrowing should adhere to the following principles :

1. The amount of borrowings from the Bank of Thailand, Government Savings Bank and commercial banks will be within limits that will preserve financial stability.

2. Careful consideration will be given to the type of securities needed and also the time requirement so that interest payment by the Government will be minimized.

Taking into consideration the above principles it has been estimated that domestic borrowings for the Third Plan period will be 34,235 million baht, the sources of which are as follows :

(1) Bank of Thailand and Commercial Banks	29,135 million baht
(2) Government Savings Bank	4,100 million baht
(3) Other sources	1,000 million baht

Revenues from State Enterprises and Local Government

With regard to the financial resources of the state enterprises the following principles will be implemented.

1. Expenditures will be controlled, especially with regard to new investment so that they will be consistent with development policies and objectives.

2. Encourage more contributions from state enterprises to the Government so that more budget will be made available for development purposes.

3. Support will be given to the state enterprises to seek funds from abroad for investment projects which require a large foreign exchange component.

The self-financed development expenditures of state enterprises will account for 8,030 million baht, of which the major portion will be for the development of transport, communications and power.

It is expected that local government will contribute about 5,815 million baht of development expenditure. Support will be given to the local government to find ways and means of increasing its revenue so that more financial resources will be made available for development purposes in the areas and localities within its jurisdiction.

TABLE 4-4

Budget Appropriation during the Third Plan period

	(million baht)
General Administration	73,370
Debt Service	25,260
Total Non-Development	98,630
Development Budget	71,000[1/]
TOTAL	169,630

1/ Including reimbursement of loan for Highway Development Project

External sources of finance

Foreign Loans :

1. During the Second Plan period the Government envisaged a large increase in the development expenditures and it was quite clear that in order to meet this requirement the Government had to diversify the sources of capital assistance. The " Source of Funds " approach was introduced in order to give the Government greater flexibility in its attempt to acquire external loans or credit assistance. Granted adequate sources of financing, Thailand could utilize with much effectiveness the international bidding system similar to that used by the IBRD, while being able to stipulate a maximum interest of 6 per cent per annum and minimum repayment terms of 10 years with a grace period covering the period of construction of installation. This approach was quite successful at the beginning and terms and conditions of the financing obtained during the Second Plan period were on the whole consistent with expectations and in many instances came close to capital aid terms. Competition in the beginning was very keen but gradually decreased due primarily to rising interest rates in the international capital market. It was increasingly apparent, during the past year, that the " Source of Funds " approach became less effective due to lack of competition as only a few countries were able to participate. IBRD, Japan and ADB respectively were major sources of financing while Germany, the United States, and Austria continued to be important sources as in the First Plan.

2. **Disbursement of Foreign Loan :** Table 4.5 indicates that the cummulative shortfall has increased as the Plan progressed. The actual disbursement during this period was only 5,860 million baht compared with the planned figures. This is due to the lack of fundable projects in the priority areas defined in the Plan. Much of the infra-structure necessary for development of rural areas has already been financed, and hence there is an increasing demand for local currency funding for the development budget.

3. Debt service: The debt outstanding at the beginning of the Sewnd Plan period stood at 5,650 million baht. This figure, however, increased substantially by the end of the Plan period, and amounted to 8,970 million baht, while debt service during the same period was 4,180 million baht. This increase in debt burden, however, was well within the permissible limit set by the Government, i.e. annual debt repayment shall not exceed 7 per cent of export earnings of goods and services. The average debt repayment for the Second Plan period was only 3.5 per cent of export earning of goods and services. Therefore the increase in debt burden during this period did not unduly affect the financial situation of the country.

TABLE 4-5

Disbursement of Loans

(million baht)

Year	Planned	Actual
1967	1,522	794
1968	1,226	925
1969	2,472	1,212
1970	2,026	1,437
1971	2,098	1,500[2]

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[1] Annual Plans

[2] Estimated Actual

4. As for the Third Plan, the balance of payments position and rising cash deficit indicate that substantial foreign assistance is vital if Thailand is to maintain an adequate pace of development in the face of external threats and developments which are beyond the country's control. This would require loan commitments of about 12,000 million baht. To achieve this target a greater effort on project preparation and pre-investment studies is required.

It has been estimated that debt repayment during this period will amount to 4,222 million baht or an average of 5.3 per cent of export earnings of goods and services. Even though the debt burden increases substantially compared with the Second Plan, it falls within the debt service criterion.

Policies for Loan Financing

Given the priorities of the Third Plan, with the present declining trend in Thailand's reserve position and the estimated capital assistance requirements of almost 12,000 million baht, the Government will carry out the following method of financing, as a supplement to existing procedures. The proposed financing method provides for increased coordination of external loan assistance to achieve effective implementation as well as relate the level of capital assistance more precisely to needs.

1. Stand-by Bilateral Financing Arrangements : Under this method of financing stand-by arrangements between individual member countries and Thailand would be negotiated on a bilateral basis. Such arrangements would stipulate certain terms and conditions for loans or credits. Two types of stand-by arrangements can be considered :

a. Capital Assistance Arrangements : This type of arrangement is particularly suitable for infra-structure projects and hence would usually have a long repayment period with low interest rate.

b. Export Credit Arrangements : With the credit terms and conditions being more uniform such stand - by arrangement are suitable for specific types of projects. However the interest rate will be of the same order as the international rate.

2. Joint Financing : International bidding would take place under IBRD or ADB auspices. Should a firm from a country covered under such a Joint Financing Arrangement win a contract, that country would extend financial arrangements to Thailand for that part of the project on agreed - upon terms. The part of the project won by countries which did not have Joint Financing Arrangement would be financed by IBRD or ADB on their usual terms. The IBRD or ADB would take the responsibility for assistance in project preparation and review and would continue to monitor the entire project.

The adoption of this approach would have the following advantages :

a. International bidding could take place even if only a few members countries would agree to participate in the stand - by bilateral arrangements.

b. Many small countries could participate in Thailand's economic development programmes.

c. Average terms would be better than those of the IBRD or the ADB.

Sources of Financing

In order to fulfill the external financing requirements and to work with the methods of financing mentioned above the Government is expected to seek financial assistance from the following sources :

1. International Financial Institutions : The IBRD will still be one of the major sources of financing for the Third Plan. IBRD is expected to cover mainly large infra-structure projects such as Quae Yai Dam Project, Fifth and Sixth Highways Projects, and Improvement of Existing Irrigation Facilities Projects, and some public utilities projects. On the social aspect, it is expected that loans for two or three educational projects such as Kasetsart University Project and Vocational School Stage II Project will be obtained from IBRD.

The Asian Development Bank will have a much greater role to play in the Development of the Thai economy compared with the Second Plan period. The ADB has been requested to consider agricultural and educational projects, especially with regards to the Special Fund. These projects are Agricultural Credit Loan to the Bank for Agriculture and Agricultural Cooperatives, Expansion of Technical Institutes for skill development. The ADB also has shown great interest in public utilities projects such as part of Bangkok Metropolitan Waterwork Project and the Construction of Bangkok - Thon Buri Bridge Project. Apart from loan financing, the ADB also provides technical assistance in project preparation and planning. In this regard, the ADB has been requested to provide technical assistance in drawing up master plan for agricultural development in certain areas.

3. Japan : Japan was by far the most important contributor during the Second Plan period. Minimum loan financing of about 3,000 million baht is expected from Japan to help financing of capital projects in the Third Plan. Terms and conditions for the new Yen Credit are expected to be softer. It is expected that Japan will not restrict its lending to the public sector. Negotiation is underway between Overseas Economic Cooperation Fund (OECF), Japan's aid administering agency, and the Industrial Finance Corporation of Thailand for financing private sector industrial development projects. This negotiation, if fruitful, will create the right environment for private investment. The loan would be channelled through IFCT to help private investors in agro - industrial projects.

4. Germany : Germany will continue to be an important source of capital assistance as during Second Plan. High priority projects which require 400 - 500 million baht financing will be submitted to the German Government during the Third Plan. Such projects are Electric Energy Generation and Distribution System in Provincial areas and industrial credit to IFCT.

5. United Kingdom : The British Government has made a capital aid offer of 120 million baht for the first time for financing capital projects in the Third Plan. This long-term loan, with low interest rate, is most suitable for educational projects and agricultural sectors or infra-structure projects with low rates of return. Therefore, high priority projects eligible for such loan must be those which require high quality goods and services from the United Kingdom which are not elsewhere available.

6. Canada : Capital assistance from Canada is expected to total 100 million baht for the Third Plan. Preliminary discussion is being carried out to prepare projects suitable for Canadian financing.

7. Denmark : The Danish Government has made an offer for a long-term loan, interest free, of about 62 million baht for supplies of goods and services from Denmark. Projects on which agreement has already been reached are the Master Plan for Kantang Harbour, Engineering Survey of Highways, Economic Feasibility Studies of Railway, and loan to IFCT for Deep-Sea Fishing Industry. When the funds available are fully committed the Government will approach the Danish Government for other stand-by arrangements.

8. Other sources : Apart from the sources mentioned above, Austria, Italy, and other countries which have shown an interest in helping Thailand's economic development will continue to play a significant role in exports or suppliers' credit types of financing. One important source of financing that the Government has seriously considered are loans from the private sector. Such loans would be suitable for public utilities projects of certain state enterprises. In this connexion the appropriate state enterprises would acquire capital for financing their investment programme through international capital markets with Government Guarantee. A project under consideration is low income housing in the greater Bangkok metropolitan area.

Technical and Grant Assistance :

Policies : Given the substantial size of the foreign exchange gap, of which 5,000 million baht is in grant and technical assistance, the Government will implement the following aid policies so that the required target can be achieved.

1. Pre - investment Studies : Since the expected foreign exchange gap must be covered by increased official borrowing, a necessary pre - condition for achieving the required capital inflow is the identification of capital projects, within priority areas, which show an adequate rate of return. In this connexion technical assistance is required to enable these studies to be carried out and completed in time for implementation during the Third Plan.

2. Project Type of Grant Assistance : In the past much of grant aid and technical assistance has been in the form of non - project assistance, such as miscellaneous fellowships and experts. It is believed that in order to utilize assistance more effectively donor countries could put more emphasis on project assistance in the high priority areas of the Third Plan.

3. Regional Development : In order to close the gap of regional imbalances and income disparities, the Government is concentrating its effort on the regions by carrying out regional development planning in the Northeast and the North, with assistance from the United States and the UNDP. In the South, the British Government has agreed to assist in drawing up a development plan. Regional Plans, when completed, will enable donor countries to focus attention on the technical and financial assistance which are necessary to the implementation of these plans.

4. Coordination among Donors : For effective utilization of technical assistance the Government has endorsed a system of aid coordination by supporting the establishment of the Development Assistance Group for Thailand. It is hoped that this Group will be able to coordinate its aid programme in accordance with the objectives and priorities of the Third Plan.

5. Relationship to National Priorities : During the Third Plan greater emphasis will be placed on the problems of absorbing and utilizing technical assistance in ways consistent with national priorities as determined by the Government. There will be more careful programming to achieve specified objectives, rather than a continuation of the project - by - project approach adopted in the past, which often resulted in excessive attention being given to low priority problems.

6. Project Grants : In view of the balance of trade deterioration, which will persist through the Plan period, and of the general slow down of the Thai economy the Government will seek direct grant assistance from some economically prosperous countries, such as the United States, Japan and Germany, who have special interests in assisting through this type of grant. The required amount is estimated at about 400 million baht per annum which will be used to accelerate the development of agricultural production for exports, education, certain public utilities and social development projects such as construction of new hospitals.

Sources of Technical Assistance and Grants

1. United States : The United States has been the largest donor of technical assistance and grants over the Second Plan period. In view of the deteriorating balance of payments position combined with budgetary pressures, it is expected that the United States will increase the volume of grants over previous levels. United States bilateral assistance has been decreasing over the last two years of the Second Plan period. This decrease has occurred primarily because of limited absorptive capacity within the areas of United States programme objectives which concentrate on counter - insurgency. These obstacles limit the scope of funding and project identification. However, with the changing political conditions within the region, the decrease in the United States involvement in Vietnam and the continuing withdrawal of United States military personnel from Thailand, the Government is hoping that the United States will modify its aid policy towards Thailand by associating its assistance more directly with economic development. Nevertheless, it is realized that the volume of aid flow will be very closely related to political conditions within the United States. Thus, the level of assistance will depend on the evolution of the economic and political relations between the two countries.

The Government's request for changes in aid policy and the expansion of assistance to cover broader areas is consistent with the current resource scarcities, and a nation - wide comprehensive approach which will result in sustained benefits to Thailand's effort in nation building. In order to help fill the foreign exchange gap the United States can explore the possibility of a sector development grant programme and Public Law 480 in addition to continuing support of the counter -insurgency activities. The sector assistance programme would provide dollar grants or loans in support of the agricultural and education sectors.

It is requested that the United States Government consider aid in the following directions for the Third Plan :

1. Increasing assistance to agencies directly involved in counter - insurgency work, such as the Police Department, the Accelerated Rural Development Office and other security - oriented agencies. The volume of aid should be consistent with the growing absorptive capacity, as well as provide relief in the maintenance costs which have become a growing burden.

2. Direct additional assistance in support of national priority programmes, particularly in agriculture, export promotion, manpower training and education.

3. Increase technical assistance in planning and programming, particularly in the field of pre-investment and preliminary feasibility studies.

4. Encouraging increased participation by the private sector through promoting pre-investment studies and technical assistance, particularly in the field of agro-business and processing industries. Joint Thai-U.S. ventures should be strongly encouraged.

5. Consideration should be given to development loans, as well as a PL 480 programme whereby the generated baht could be used for: (a) the strengthening of the agricultural credit system, through the Bank for Agriculture and Agricultural Cooperatives; (b) broader credit support to private industrial investors through the Industrial Finance Corporation of Thailand; and (c) development of education in the regions.

6. Increasing assistance to regional development projects which will yield immediate benefits to Southeast Asian countries, particularly in the fields of regional transport and Mekong Basin development.

2. United Nations : In the past some form of assistance from the United Nations consisted of **ad hoc** provision for specific requests of either experts or fellowships, or in some cases equipment or a combination of both. While the United Nations assistance has been valuable to the development effort of Thailand, the Government feels that the general guiding principles behind the United Nations assistance should be modified to correspond to the changing priorities of the national development plan. The Government would like to see a greater degree of concentration on the so-called " mini projects " with close linkage to special fund projects. This will result in fewer projects, but those well directed towards more specific objectives and targets.

It is estimated that assistance for the Third Plan period will amount to 300 million baht under the Indicative Country Programming Criteria. High priority projects under negotiation for financing from United Nations are shrimp and prawn culture research, development and training centre, integrated rural youth programme, development planning for the West and agricultural and industrial development project by types of industries. In addition to the UNDP country programme about 60 million baht of assistance from other UN specialized agencies is expected for hill tribes development project.

3. The Colombo Plan : Technical and grant assistance from the Colombo Plan Group is based on bilateral negotiations, but it has to fall within the framework of the Group. Japan, the United Kingdom, Australia, and New Zealand have been important donors. For the Third Plan it is expected that assistance from Japan could go up significantly, while that from the other donor countries will continue to expand. The desirable objective from the point of view of the Government is to concentrate on the project-type approach and relatively less on fellowships and travel grants. Country-by-country analysis is given below :

a. Japan : Japan is by far the most important Colombo Plan donor country for Thailand. Nevertheless, assistance in the past only averaged about 50 million baht per annum. Japan has now indicated its willingness to help Thailand correct balance of trade problems by giving emphasis to agriculture export promotion. Commodities under consideration, which have great market potential, are maize, soy bean, silk, and shrimp. Projects for these commodities are being prepared and requests will be made in the form of technical assistance, grants and rural credit.

Since the Japanese Government has declared its willingness to raise by 1975 her total aid level, which includes private investment, to one per cent of gross national product, with special emphasis on Southeast Asia, aid flow from Japan is expected to increase substantially during the Third Plan. Furthermore,

Japan has put greater emphasis on pre-investment studies such as the Songkhla Port Project and is now considering giving assistance through a grant for the construction phase. In addition the Government is exploring the possibility of project grant assistance from Japan for projects of high priority such as Tak Technical Institute, King Mongkut's Institute of Technology and Suburban Hospital.

b. United Kingdom : The new British policy concerning Southeast Asia is favourably viewed by the Government. It is hoped that this policy will bring about an increase in British assistance to Thailand. Projects for which British assistance is requested will include Development of Land Settlement in the South, Puket Port Survey and Development Planning for the South.

c. Canada : Assistance from Canada will concentrate mainly on the development of natural resources, education and some feasibility studies in the fields in which Canada has special expertise.

d. Australia : Australia has shown interest in helping Thailand in many fields. For the Third Plan it is expected that Australian aid will increase and will cover such fields as agricultural education, university fellowships, road construction, hill tribes development and land development.

e. New Zealand : For the Third Plan New Zealand will probably wish to concentrate on a smaller number of substantial projects. These projects include livestock development in the Northeast, aviation for agricultural purposes, and pesticide control and research.

4. Third Countries : Another source of technical assistance is the " Third Country " donors. These comprise countries which do not belong to such regional aid associations as the Colombo Plan and are mainly European countries. Their aid policies vary in accordance with each country's own policy regarding project acceptability. Some of these countries follow the policy of " area concentration ", limiting their aid programmes to a number of countries of their choice or to multi - lateral sources of assistance such as the UNDP. Nevertheless, technical assistance from this source is important to Thailand.

a. Germany : The Federal Republic of Germany is the most important source of assistance among this Group. The German Government agreed to assist ten projects such as the Bangson Technical Teachers College, Protein Food from Algae and Bangkok Traffic Study, and would give favorable consideration to fifteen more projects during the course of the Third Plan. The German Government has been requested to broaden its technical assistance concept to cover provision of grant assistance, including material and equipment, as a substantial part of the projects.

b. Denmark : Danish assistance will concentrate mainly on agricultural and social development. However, it is expected that the Danish Government will broaden its scope of assistance to cover other sectors as well. Important projects where an approach has been made are family planning and pre-investment studies in both the agricultural and industrial sectors.

The Government is keenly interested also in receiving a greater flow of assistance from Israel, France, Switzerland, Austria, the Netherlands, and Belgium. Even though Thailand qualifies to receive aid in the form of fellowships from some of these countries, other forms of assistance would be important to the development process. Possible projects for assistance are cotton development, agricultural and irrigation development in the North from Israel, education from France, tourist development from Switzerland, and ship construction and repair from Belgium.

Fiscal Measures :

The fiscal situation during the Third Plan period (1972 - 1976) is expected to deteriorate compared with the Second Plan. It is therefore necessary to improve the fiscal system so that adjustments can be made in accordance with the changing economic conditions, thus obtaining greater efficiency in fiscal management.

This is in contrast to the past situation, where the high growth rate contributed to the substantial increase in revenue and treasury balances which resulted in economic stability. However, with the present slow down in the economy, fiscal measures cannot be adjusted automatically thus creating a constraint to the expansion of Government expenditures to alleviate both economic and social problems. The fiscal system has to be modified to obtain greater flexibility, so that its application will have an immediate effect on growth, and be consistent with the development policy.

1. Tax System : During the economic recession period, the relief of tax burden to reduce the cost of production and to promote exports is one important measure to boost the economy. The relief of tax burden is generally carried out in the form of tax exemption which in turn lessens the volume of tax and Government revenue if there are no other sources to replace it. There should be long-term tax planning and the tax base and tax structure adjusted to respond to the changing economic condition, the development requirements of the nation, and social justice.

2. Budgetary Spending : In the recent past, the actual spending of Government budget had a downward trend and often the release of Government budget to correct various economic problems is neither sufficient nor in time. The delay in the release of budget is due to an imperfect work plan, the various rules and regulations in fiscal and budgetary administration, and the failings of the financial officials. The various rules and regulations concerning budgetary spending should be corrected and financial officials should be trained in payment methods. The carry forward of the budget should be restricted.

3. Internal Borrowing : Internal borrowing has been restricted not to exceed 20 per cent of Government budget. This restriction in useful for controlling Government spending. However, it has the defect of making net Government borrowing change all the time; this is because the net borrowing depends on the amount of repayment. If repayments are high, the Government net borrowing will have to be small regardless of the economic situation. Hence, in the present situation, consideration of gross borrowing is no longer a satisfactory fiscal tool to solve economic problems. Government borrowing should be reviewed to set the ceiling for net Government borrowing and not for the total borrowing. Relevant laws in this area should also be reviewed.

4. Internal Debt Administration : In the past, the Government relied primarily on long-term Government bonds the term and interest rates of which depended on market situation. This caused a very high level of internal debt and in some cases hampered the economic stability of the country, e.g. during the economic recession period short-term treasury bills should be issued since they have high liquidity but, instead, long-term Government bonds with higher interest rate were issued. A proper policy for internal debt administration should be evolved based on the principle of maintaining economic stability and minimizing the interest burden.

5. State Enterprises Savings : To control the spending of various enterprises particularly state enterprises investment so that these expenditures conform with national policy and national development. There should be a principle for these enterprises to transfer earnings to the state and put their savings in the Bank of Thailand or buy Government securities.

6. Monetary Policy : In the past monetary policy played an important role in maintaining a proper volume of money supply, consistent with economic stability. In the future, apart from economic stability, the restructuring of the economy is an important goal in the Third Plan. Therefore, during the Third Plan period the monetary policy will be geared to financial satqility and estrucrturing of the economy.

7. Government Securities : At the end of the Second Plan, Government securities were largely sold to the Bank of Thailand. During the Third Plan, the Government has a policy to borrow from the Bank of Thailand in appropriate amounts. As borrowing is an important source of Government revenue, sales of Government securities will be expanded by improving the interest rate and by encouraging saving banks to buy more Government securities. This can be achieved by allowing saving banks to increase the interest rate for bank deposits to a rate comparable with that of commercial banks.
(List of projects is in the Appendix.)

CHAPTER 5

DEVELOPMENT IN THE PRIVATE SECTOR AND GOVERNMENT ENTERPRISES

PART I

Private Sector

Second Plan Performance

In the Second Economic and Social Development Plan, it was emphasized that the Government's private sector development policy was to promote development in industry, commerce and services, and to encourage a better relationship between the public and private sectors. In order to expand private investment, three main policies had been laid out, namely:

1. To adopt private investment promotion measures according to the Private Investment Promotion Act.

2. To prevent possible actions which would compete with efficient and progressive private operations.

3. To develop public utilities which would encourage the role of the private sector to maintain the country's fiscal and monetary stability.

Development in the private sector during 1967-71 was illustrated by the enormous expansion of private investment. In the first three years in particular it increased very rapidly due to various factors:

1. The price of the main crop, rice, rose to a very high level;

2. Government economic development expenditures on major projects, such as the construction of dams, highway, etc., increased; and

3. U.S. military expenditures on construction rose very rapidly.

The increase in demand for goods and services resulting from these expenditures stimulated further investment for production to satisfy the increased demand. Construction, commerce, financial institutions, industry and other services were the sectors with largest investment. Also, that decade marked the beginning of the implementation of the investment promotion policy. Under the provisions of the Investment Promotion Act many privileges were granted, thereby creating more investment incentives for both domestic and foreign investors.

The rate of growth of private investment in the last two years of the Plan, i.e. 1970-1971, slackened as some industries reached maturity. The rural purchasing power increased at a lower rate, and investors were faced with the problem of land speculation and the need to increase the mobilization of domestic capital.

During the period 1967-1971 financing of private investment depended on savings by private enterprises, foreign investments and sources other than the financial institutions. Nevertheless, savings channelled into private investment by financial institutions increased. Altogether approximately Bht. 15,000 million came from financial institutions, of which Bht. 10,000 million were credits from commercial banks. Other new institutions which played an important role included the Bank for Agriculture and Agricultural Cooperatives, the Industrial Finance Corporation of Thailand, insurance companies, and recently, financial companies whose business was to accumulate private saving and make loans or invest for greater profit. There are also financial institutions which purchase and sell assets; their operations are however limited in scope.

In the past, expansion of the private sector also had major effects in other fields. Some of these are:

1. The number of businesses organized as limited companies which are larger than firms with individual owners or partnerships, increased substantially. Since the Government policy is to encourage greater public holdings of shares in industrial businesses, and since limited companies allow shareholders, an increasing number of industries are offering shares for sale to the public. During 1968 - 1970, 290 million baht worth of new issues went through the capital market.

2. Professions or branches of private businesses formed associations and their role became more important. Their major functions were to present facts about and problems of the private sector to the Government, as well as making recommendations on remedial measures which would be useful for policy making and implementation. Another important role of business associations was to cooperate in overcoming hindrances and problems which affected business operations both directly and indirectly. Examples of this include recommendations to solve the problems confronting the Thai Manufacturing Association; the cooperation of the Thai Bankers Association in remedying the commercial bank crisis, and the cooperation between the Textile Manufacturing Association and the Gunny Bag Group to develop exports.

3. Business and industrial interests were encouraged among the Thai people as a result of the opportunity to hold shares, and participate in working and professional training.

Although private investment expanded and created development in various fields, the private business system has still other problems which remain to be solved. The problems can be summarized follows:

1. Private investment in agriculture is still low compared with other sectors. This is due to the low rate of agricultural development in the past. Agricultural progress affects investment in other sectors because agricultural produce and income are crucial to many industries. The agricultural sector provides raw materials and a market for industrial products. Moreover, foreign currencies arising from exported agricultural products are used in purchasing machinery and tools to increase investments in industry.

2. Main structural problems of investment in industry are:

a. Most of the industries which are granted promotion certificates produce import substitution commodities for the domestic market. Since the domestic market is too limited and the present investment promotion policy encourages competition among producers in similar industries, new entries are often small with low productive capacity and high costs of production.

b. Industrial promotion still lacks a plan for firm linkage among industries. With the present scheme, new industries are scattered among many sectors.

c. Public utilities essential for production such as electricity and transportation are still insufficient. There is also the problem of high price of land and housing, and the need for industrial estates, both in the metropolitan area and at selected sites around the Kingdom.

d. Financial institutions which mobilize funds for investment are still in their early stages; there is not, as yet, a real capital market, and the regulating laws are still inadequate.

3. Competition among businessmen to maximize short run profits destroys development of private businesses in the long run. There is no coordination, and existing business associations are still unable to operate successfully in fulfilling their objectives. Little has been done to encourage the entrepreneurs in this aspect.

4. There is no close cooperation among various Government agencies for immediate and prompt considerations of policy actions to remove the obstacles facing the private sector.

Policies and Measures for Private Sector Development.

In the Third Economic and Social Development Plan, major policies and measures for development in the private sector are as follows:

Policies

1. To promote private investment, both domestic and foreign, and in particular export industries, by overcoming the problems and obstacles facing the private enterprises.
2. To promote stable businesses of a size such that production and marketing are efficient.
3. To create fair competition in the private sector by standardizing industrial products and exports.
4. To support business integration in the form of legal business associations or groups in order to encourage closer relations between the Government and the private sector.
5. To encourage as active role by the business associations or groups in presenting facts, obstacles and problems, and making recommendations to the Government on policy measures.
6. To improve the efficiency of civil service administration so that, in time, obstacles to the cooperation of the private sector are overcome.

Measures:

The main step towards development of the private sector is to encourage a more active role of the private business institutions, especially in making recommendations to the Government for the formulation of policies. Important measures are as follows:

1. To support integration of businesses, especially in the rapid growth sectors such as exports, tourism, and financial institutions, etc.
2. To support the participation of business representatives in various committees working on solutions of problems which are detrimental to the nation's economic development.
3. To promote the establishment of a joint committee for closer cooperation between the Government and the private sector.
4. To define the scope of action of the private sector so that the Government need not intervene in order to prevent conflicts or duplication of work.

Politicies and Measures to Promote Private Investment in the Agricultural and Agro-Business Sectors.

1. To accelerate the production of crops which are required in foreign markets or are employed as raw materials in domestic production. An important measure is to develop the transportation sector in order to lower transport costs from the production plant to the export destination and to minimize the production costs of raw materials.
2. To encourage more and larger farmers' groups and support their role in improving the production process, and to find new markets and sources of credit.

3. To encourage industries employing agricultural raw materials and export industries to participate in agro-businesses by stabilizing the price levels through purchases from farmers' groups, expansion of use of new agricultural techniques, and long-term purchasing contracts.

Policies and Measures to Promote Private Investment in the Industrial Sector.

1. To support private investment in industry by giving priority to export oriented industries, industries with high value added, basic industries and industries with economics of scale, especially agriculture.

2. To encourage the expansion of industrial activities in the regions.

3. To protect and help the industries through the imposition of taxes and duties, by controlling them at an appropriate and timely level, taking efficiency and public welfare into consideration. Important measures to be undertaken to encourage private investment in industry include:

a. Amendments in the Investment Promotion Act so as to be able to direct successfully private investment in industrial activities according to the economic situation and the country's future requirements. Other laws will also have to be amended to comply with the investment promotion policy.

b. The improvement of investment promotion procedures by enlarging the scale of operations, especially in industries essential to the public. The improvement of procedures will cover both solution of problems and administrative difficulties, and the construction of convenient facilities in order to gain the confidence of the investors. Such facilities include transportation, power and industrial estates.

Development of Financial Institutions:

The present structure of financial institutions: The system of financial institutions in Thailand at present comprises the Bank of Thailand, which is the nation's central bank, commercial banks, insurance companies, and a few specialized financial institutions such as the Savings Bank, the Bank for Agriculture and Agricultural Cooperatives, the Housing Bank, the Industrial Finance Corporation of Thailand, and the Office of Small Industries. Moreover, during the last two years of the Second Plan period, many private financial institutions have been established, for example, financial companies, such as Thailand Investment and Securities Co. Ltd., mutual funds for the purpose of accumulating saving from the public and to provide financial services including investment advice, sales, purchases and exchange of assets.

Of the existing financial institutions, except for the Bank of Thailand, the commercial banks are the most important. In 1970, there were 661 commercial bank branches with total assets of approximately 41,000 million baht, nearly five times more than the assets of all other financial institution put together.

Capital Accumulation and the Supply of Money to the Private Sector in the Second Economic and Social Development Plan (1967-1971)

Capital Accumulation: There are financial institutions which accumulate capital by collecting deposits, namely commercial and saving banks. There are also other institutions which were established by the Government under special legislation, namely the Housing Bank and the Bank for Agriculture and Agricultural Cooperatives. The latter two banks are, however, limited in their operations. The Housing Bank only accepts time deposits of at least two years, while the Bank for Agriculture and Agricultural Co-operatives does not accept demand deposits. In addition, these two banks are very selective in the loans they make. Their role in private capital formation at present is, thus, very limited. Capital formation in other financial institutions, apart from life insurance, is through the issue of shares, debentures and promissory notes to the general public. As for life insurance companies, capital is accumulated through premium of policy holders.

Private capital formation through all financial institutions during the Second Plan period amounted to 21,000 million baht, 14,000 million of which are fixed deposits in the commercial banks, 2,900 million from the Savings Bank, 2,500 million from life insurance companies and 900 million baht from other financial companies.

The Supply of Money to the Private Sector

In general private investment, especially investment in agriculture, requires saving from private activities and other sources apart from the financial system. So far, commercial banks have played the major role in the circulation of the money supply. Their loans, however, are for only a short period and solely for business purposes. The Saving Bank can accumulate a substantial volume of saving, but most of these is lent to the Government and very little is available for lending to the private sector.

The financial institution which directly meets the demands for credit of the agricultural sector is the Bank for Agriculture and Agricultural Cooperative. Its scope of operations, however, is still limited. Only short term and medium term loans are available. The demand for short-term and medium-term industrial credit is met by the IFCT and the Office of Loan for Small Industries. Moreover, the IFCT's long-term loans are limited and rely on credit from abroad; and the Office of Loan for Small Industries depends on commercial banks for guarantees, thereby limiting its scope of work. The private financial companies are still in the early stages-of development, while the role of other financial institutions which have long-term capital, e.g. life insurance companies and private pension funds do not have sufficient volume to satisfy the country's demand for long-term industrial credit. Most of their investments are in the form of Government bonds or fixed deposits with the commercial banks.

The financing of the private sector not only requires more long-term credit, but also lacks a satisfactory capital market to issue new shares. This is due to the small scope of the existing institutions which deal with the sales of shares to the public. The securities and share market is still in its early stage of development.

As a result of the need to satisfy the private demand for capital during the Second Plan period, commercial banks have extended credit, in the form of loans and overdrafts, which increased at the high rate of 16.9 per cent per annum.

During 1966-1970 the net private loans made by commercial banks increased by 10,103 million baht, mostly in the form of loans for agriculture, mining, industry, construction, business dealing with intangible assets, and public utilities. The Bank for Agriculture and Agricultural Cooperatives made loans to the agricultural sector, both directly and via agricultural cooperatives, amounting to 2,185 million baht. The demand for credit for agricultural investment is large and the BAAC is unable to expand because of limited resources. The IFCT gave loans for medium sized industrial activities amounting to 424 million baht between 1967-1970, and it is expected that by the end of 1971 the corporation can expand its activities still further. It is, however, faced with the problem of insufficient capital because the industrial Finance Act of Thailand specifies that the Government cannot guarantee loans of more than 500 million baht. It is essential that this Act be amended immediately.

The Office of Loan for Small Industries, in the first four years of the Second Plan, made loans of 106.3 million baht. It is estimated that by the end of the Plan period, the office can loan 133 million baht. Life insurance companies activities in the private sector during 1967-1970 amounted to 101 million baht. By the end of 1971 life insurance companies will have invested 125 million baht in the private sector. However, life insurance companies play only a minimal role in meeting the demand for private investment. The fundamental problem they face is the lack of public confidence which combined with the small scope of the capital market, means that life insurance activities can still contribute only very little to financing development. The money and capital markets provided 1,200 million baht to financing in private investment in the last five years. Their operations have not fully satisfied the private demand because of inefficient flow and the lack of knowledge of the public which still prefers investment in the form of shares and debentures.

Private Investment Targets for the Third Economic and Social Development Plan

In the Third Plan development of the private sector will become even more essential. The demand for private investment in various fields is estimated to be no less than 131,000 million baht, which is more than the 92,000 million baht specified in the Second Plan. Private investment will increase at an average rate of 5 per cent per annum.

Major Policies and Measures concerning Development of the Various Financial Institutions:

During the Third Plan, the financial institutions will be encouraged to extend their operations in order to mobilize saving outside the institutions for more productive investments. The existing financial institutions include commercial banks, the Bank for Agriculture and Agricultural Cooperatives, the Industrial Finance Corporation, the Industrial Finance Corporation of Thailand, the Office of Loan for Small Industries, life insurance companies, and the financial and private investment companies, all of which will be encouraged to widen the scope of their operations in order to satisfy the vast demand for capital.

The new institutions, such as the money and capital markets, must be under close supervision of the Government so that the public can be assured that their investments are protected. A Public Company Act will aim at the establishment of appropriate and well administered public companies. In order to promote the operations of the money and capital markets, the problem of tax differentials will be eliminated, and taxation privileges, etc. will be granted in order to improve the working of the money and capital market and make it an important tool in the accumulation of saving and directing allocation of such saving to investments which provide a high return for economic development.

In order to meet these objectives the role of the Bank of Thailand, as the central bank of the country, is assumed to improve and ensure a stable system of commercial banks which will gain public confidence, and a maximum level of development of the economy. Assistance will also be given to commercial banks and other special financial institutions, especially the BAAC and IFCT, within limits corresponding to the country's monetary stability.

TABLE 5-1

Source of Private Fund, during 1971-1976

(million baht)

Corporate and Private		96,800
Foreign Investment		13,870
Financial Institution		20,430
Commercial Banks	12,500	
Bank for Agriculture and Agricultural Cooperatives	3,250	
Industrial Finance Corporation of Thailand	1,680	
Office of Loan for Small Industries	300	
Insurance Companies	200	
Capital & Money Market	2,500	
TOTAL		131,000

Policies and measures essential for the development of financial institutions during the Third Development Plan period can be set out as follows:

Commercial Banks

1. Support and promote commercial bank activities in accumulating saving by the following measures.

a. Allow the establishment of commercial banks' branches in the provinces, especially in areas where commercial bank facilities are inadequate.

b. Encourage commercial banks to allow saving deposits of more than one year in order to promote long-term savings. For this purpose, the rate of interest for saving deposits needs to be appropriately revised.

2. Encourage commercial banks to expand their services to satisfy demands in the sectors essential to economic and regional development through the following measures:

a. Give special support for opening of branches which will help rural development.

b. Encourage commercial banks to cooperate and give financial assistance to special financial institutions which give loans for agriculture and industry.

c. Encourage the Bank of Thailand to give more credit to commercial banks in the form of promissory bills discounts.

The Bank for Agriculture and Agricultural Cooperatives

1. The Government will give financial assistance to the Bank for Agriculture and Agricultural Cooperatives by investing in the Bank's shares and providing necessary loans.
2. Support and assist the Bank in finding sources of funds both internally and externally.
3. Expand mid-term credit so as to allow farmers to adopt modernized agricultural techniques.

4. Proceed in accordance with the Government's agricultural promotion policy and those of related Government agencies. Long-term credit for agriculture may be considered through a separate financial institution.

Industrial Finance Corporation of Thailand

1. Support the corporation in giving more loans to high priority industries especially those which employ agricultural products as raw materials, those which produce export commodities or import substitutes and those which produce agricultural resources.

2. Encourage the corporation to invest in public industrial companies which are crucial to economic development.

3. Give support to the corporation to participate in the development of a capital market; this could be in term of setting up branch offices in the provinces.

4. Amend IFCT Act in order to increase capital when required.

Life Insurance

1. Improve the supervision and control of the life insurance business in order to gain public confidence.

2. Consider amending the Revenue Code to correspond to the present operating procedures of life insurance companies. This would include, possibly, giving equal privileges to investment in securities or pension funds.

3. Support the life insurance companies in their effort to buy shares in secure and stable private business.

Money Market

1. Develop an investment climate to encourage development of security markets.

2. Enact specific laws in order to supervise the operations of various financial institutions, according to sound principles and corresponding to the financial and economic policies of the country.

3. Support the establishment of financial institutions whose role is to accumulate funds from savers and make long-term investments in private securities. These financial institutions include provident funds, life insurance, trust funds, and other saving institutions.

4. Improve and organize proper share and capital markets.

5. Adjust the imposition of taxes.

6. Promote more public companies by the following measures:

    a. Enact the Public Company Law, in order to achieve closer control of these public companies.

    b. Amend and improve the Revenue Code to encourage investment in public companies.

PART II

Public Enterprises

General Situation

State enterprises are those business activities undertaken by the Government to help accelerate national economic and social development. The Government operated state enterprises were first established some time ago, commencing with such public utilities as the railroad and telephones services, where large investments were required. Later, the scope of state enterprises was broadened to include the production of goods and services for which there was inadequate private investment, the production of goods and services during war time as well as to counter foreign economic influence. Apart from the production of industrial goods, state enterprises were also engaged in commercial, banking and agricultural undertakings in order to provide goods and services to satisfy the demand. Because of the lack of definite policies and objectives in the creation of state enterprises, their number has increased tremendously. Most of those run at a profit were monopolies. Others, which experienced tremendous losses, were abolished.

State enterprises or Government business activities have been growing rapidly. They include both those operated by the Government and those in which the Government has equity capital. It was deemed necessary to establish definite policies for the operation of Government organizations prior to the First Plan. The National Economic Development Council Act of 1959 defines state enterprise as "an activity in which the Government holds total capital or more than 50 per cent equity capital". According to this definition, there are at present 80 state enterprises. Of these, the Government totally owns 49 and holds more than 50 per cent equity capital in 31. This does not include the circulating capital state enterprises which are small in size and are of little importance to the economic development of the country. The 80 state enterprises can be classified into 4 categories, as follows:

1. **The state enterprises which were founded by virtue of specific acts with total Government capital.** There are 15 state enterprises in this category. According to the acts these state enterprises have to prepare annual budgets, including capital and current expenditures. The capital budgets have to be submitted to the cabinet for final approval and the income statements for acknowledgement. These state enterprises include the State Railway of Thailand, Port Authority of Thailand, Electricity Generating Authority of Thailand, Telephone Organization of Thailand, etc.

2. **The state enterprises founded by royal decrees in pursuance of the State Enterprises Establishment Act 1953 in which the Government holds total capital.** There are 19 state enterprises in this category, which include the Express Transportation Organization (ETO), Forest Industry Organization, Fuel Organization, Rubber Plantation Organization.

3. **The state enterprises founded by Civil Code having the legal status of limited companies.** There are 27 of such state enterprises, the Government holding either all or more than 50 per cent of their capital. Those in which the Government holds total capital include the Thai T.V. Co. Ltd., Thai Airways Co. Ltd., Thai Plywood Co. Ltd., etc. Those in which the Government holds more than 50 per cent of equity capital include the Aeronautical Radio of Thailand Ltd., United Thai Hotel and Tourist Co., Ltd., Thai International.

4. **The state enterprises which were founded by cabinet resolution, with the circulating capital fixed by the Government under the supervision and control of particular ministries.** There are 19 state enterprises falling in the category. These enterprises do not enjoy the same legal status as the aforementioned state enterprises. Any legal commitment has to be made by the ministries concerned. These include the Bureau of Lottery, Thai Tobacco Monopoly, State Pawn Shop, Alum Factory etc.

All of these state enterprises are controlled and regulated by the cabinet which issue the regulations periodically, such as the Financial and Accounting Regulation 1961 and the Investment Expenditures of the State Enterprises Regulation 1963. Under the Investment Expenditures of State Enterprises Regulation 1963, all state enterprises have to prepare an annual budget of capital and current expenditures to be submitted to the State Enterprises Executive Committees for prior approval. In addition, before implementation, the state enterprises have to submit the annual investment expenditures for the approval of NEDB Executive Committee according to the National Economic Development Council Act, 1959, revision 1960. Apart from the control of investment expenditures, under this legal stipulation, the state enterprises' investment expenditures have also to be submitted to the cabinet for final approval.

State Enterprise Operations during the First and Second Plans.

During the First Plan, most of the development expenditures had been channelled to investment in the public utilities state enterprises such as the Electricity Generating Authority, State Railways of Thailand and the Port Authority of Thailand, as well as debt amortization, repayments of loans by various Government industrial enterprises. Because during that period the Industrial Investment Promotion Act 1959 was enacted by the Government, the expansion of state enterprises, particularly those engaged in industrial activities, was restricted. Under the First Plan, total state enterprise development expenditure was estimated at 8,655 million baht. Of this amount 3,500 million baht was to be allocated to energy sector state enterprises, 3,300 million baht to the transport and communication sector, 1,400 million baht to the industrial sector, 260 million baht to the agricultural sector and 140 million to the commercial and services sector. However, the actual disbursement of development expenditures was only 5,700 million baht or 66 per cent of the total planned expenditures. (See Table 5.2) This was attributable to the fact that there had been more effective control on the management policies of the state enterprises. During this Plan period, increased effort has been made to control the financial management and investment expenditures of state enterprises so that satisfactory results were achieved.

During the Second Plan, continued effort had been made to improve the efficiency of state enterprises, particularly public utilities and services. Satisfactory results were achieved as was witnessed by the fact that state enterprises were able to play a more active part in support of national economic and social development by channelling more of their earnings to financing of development projects. (See Table 5-2). Consistent with the policy to discourage competition with the private sector, the relative importance of industrial and commercial state enterprises has declined. During the Second Plan, the total development expenditure for state enterprises approved by the Government was 9,858 million baht. Of this amount, 4,800 million baht or 49 per cent of the total was allocated to the state enterprises in the transport sector, 4,300 million baht or 43 per cent to the energy sector, 465 million baht or 5 per cent to the agricultural sector and the rest, only 3 per cent was allocated to industry and commerce sector. The decrease in development expenditure of industrial and commercial state enterprises was attributable to the Government's policy to encourage domestic and foreign private entrepreneurs to participate more in investments for national economic development. In addition, during the First Plan the Government had allocated much of its investment to the improvement of state enterprises which enabled them to increase their earnings and improve their financial position. Hence, during the Second Plan, more emphasis was placed on encouraging the state enterprises to finance investments from their own earnings in order to alleviate the pressure for foreign loans on the national budget. Of the total 9,858 million baht projected development expenditures for state enterprises, retained earnings accounted for 4,046 million baht or 41 per cent of the total, the Government budget contributed about 2,000 million baht or 20 per cent of the total and foreign loans and credits accounted for 3,835 million baht, or 39 per cent of the total. However, the actual disbursement of development expenditures during 1967-1969 and 1970-1971 was approximately 9,685 million baht (see Table 5) or about 98 per cent of the Second Plan's projected outlays. Of the total actual development expenditures for state enterprises, 4,975 million baht or about 52 per cent was from their own earnings which represented a 970 million baht increase above the projected level, 2,058 million baht or 21 per cent was from the budget appropriation and the remaining 2,651 million baht or 27 per cent was from foreign loans and credits which is about 12 per cent lower than the projected 39 per cent. The comparison of development expenditures and actual financial implementation indicated clearly that there had been much improvement in the overall performance of the state enterprises during the Second Plan. However, inefficiency still prevails in many state enterprises. State enterprises which operated at a profit were monopolies and those in the power sector. Together, these enterprises were able to contribute 4,500 million baht to the Government's revenue during the Second Plan period.

TABLE 5-2

Total Development Expenditure of State Enterprises by Source of Financing and Sector

F.Y. 1961-1966 and F.Y. 1967-1971

(million baht)

	First Plan (1961-66)		Second Plan (1967-1971)			
	Budget	Actual	Budget	Actual 1967-69	Estimated 1970-71	Total
Agriculture Sector						
Development Expenditure	263.21	151.58	465.89	62.68	44.78	107.46
Financing Source						
Own Resources	194.46	71.71	400.00	13.42	32.35	45.77
Gov't Grants & Loans	68.75	62.78	65.89	49.26	12.43	61.69
Foreign Loans & Credit	—	17.09	—	—	—	—
Transport & Communication						
Development Expenditure	3,266.05	1,888.89	4,842.24	1,932.41	2,350.34	4,282.75
Financing Source						
Own Resources	1,372.92	980.32	2,458.77	1,295.68	1,576.63	2,872.31
Gov't Grants & Loans	1,001.73	544.03	673.47	259.59	182.08	441.67
Foreign Loans & Credit	890.40	364.54	1,710.00	377.14	591.63	968.77
Power Sector						
Development Expenditure	3,521.20	2,860.62	4,272.16	2,255.08	2,550.93	4,806.01
Financing Source						
Own Resources	588.48	366.21	1,004.38	827.84	809.80	1,637.64
Gov't Grants & Loans	564.70	1,051.75	1,142.28	672.16	813.52	1,485.58
Foreign Loans & Credit	2,368.02	1,442.66	2,125.50	755.18	927.61	1,682.79
Industry Sector						
Development Expenditure	1,468.37	731.98	278.05	273.49	124.03	397.58
Financing Sector						
Own Resources	687.97	366.24	183.36	253.41	112.39	365.80
Gov't Grants & Loans	540.90	365.74	94.69	20.08	11.64	31.72
Foreign Loans & Credit	239.50	—	—	—	—	—
Commerce & Service Sector						
Development Expenditure	136.56	71.25	—	28.51	63.04	91.55
Financing Source						
Own Resources	130.56	61.35	—	28.51	25.07	53.58
Gov't Grants & Loans	6.00	9.90	—	—	37.97	37.97
Foreign Loans & Credit	—	—	—	—	—	—
Total Development Expenditure						
Financing Source	8,655.39	5,704.32	9,858.34	4,552.17	5,113.12	9,685.29
Own Resources	2,974.39	1,845.83	4,046.51	2,418.86	2,556.24	4,975.10
Gov't Grants & Loans	2,182.08	2,034.20	1,976.33	1,000.99	1,057.64	2,058.63
Foreign Loans & Credit	3,498.92	1,824.29	3,835.50	1,130.32	1,519.24	2,651.58

Some progress has also been made in the implementation of the Second Plan's policy to review the objective and operation of each state enterprise for further improvement or abolition. This is reflected in the decrease in the number of state enterprises from 108 at the beginning of the Second Plan to 80 today. Among these abolished state enterprises were the changwat companies in which all share holdings were sold to private investors, the Gunny Bags Co., Ltd. which was sold to private investors, and the Thai Salt Co. Ltd., which is in the process of account clearing following the cabinet's resolution to abolish it. As for state enterprises in the power sector, the cabinet decided upon a merger of Yanhee Electricity Authority, Lignite Electricity Authority and Northeast Electricity Authority into an Electricity Generating Authority.

Development of state enterprises during the Third Plan

During the First and Second Plan periods, most of the state enterprises which operated at a profit were monopolies or enjoyed special privileges. There are still some state enterprises which suffer losses in their operation or where established policy objectives and targets cannot be carried out. This is due primarily to problems and obstacles which require immediate attention during the Third Plan period.

Major problems are as follows:

1. There is inefficient management as a result of poor planning, lack of careful long-term budgetary projections, lack of good organization, underemployment and misallocation of manpower as well as lack of effective control systems which result in high operation cost. Various state enterprises committees should be rearranged to include experienced and capable members to control the management.

2. On the production and marketing side there are no marketing research studies undertaken by some state enterprises to provide guidelines for the formulation of production plans to meet market demand. In addition, those who run state enterprises are often inexperienced in business practices. Hence, there are problems of over - production and high production cost due to the purchase of expensive raw materials and the lack of appropriate trading practices in attracting consumers. Upon encountering these problems, the state enterprises have continually asked for special privileges from the Government, and once those are granted the inefficiency becomes permanent, and the state enterprise cannot compete with the private producers.

3. As regards finance and accounting, some state enterprises do not have financial planning and suffer from a critical shortage of competent accountants. In addition, they have been unable to apply modern financial control systems to their operation. This brings about a shortage of circulating capital, and it is difficult to keep management officers well informed on the actual financial status of existing state enterprises.

4. Too much of state enterprises earnings are channelled into unnecessary investments inconsistent with the overall economic development policy. These investments are considered unproductive, causing increased current expenditures and decrease profit. Hence, the State Enterprises Investment Act 1964 should be amended to guarantee more effective control and prevent unecessary expenditures.

5. Some state enterprises do not attempt to exercise their responsibilities as prescribed by law or the Government's policy. Instead they invest in activities which are not beneficial to the public or in activities in which the private sector can do better with less expenditure. Some state enterprises involved in providing public services concentrate too much on making profit and do not channel their increased earnings for the expansion of services or to reduce the charges to lower the cost of living.

6. Large state enterprises which are efficient and have high rates of return have not been trying to increase their contributions to the Government. Instead, a major portion of the increased earnings have been used to finance their expanding investments which in some cases brings about increased domestic demand inconsistent with the fiscal plan. Hence, it is necessary to encourage more contribution from the state enterprises so that more resources can be channelled to other national economic development programmes.

In order to solve these shortcomings, the Third Economic and Social Development has established policy objectives to improve the efficiency of state enterprises which will be conducive to the success of the overall national economic development effort.

Policy and Operational Guidelines:

Definite policies and operational guidelines for state enterprises have been established in the Third Plan so that the private sector will be informed of the Government's intentions. Definite criteria will be established by the Government regarding what types of state enterprises will be supported. Those which do not qualify for Government support will be transferred to the private investors by:

1. Total disposal.
2. Selling some share holdings.
3. Granting lease for those state enterprises which do not justify Government's operation.
4. Closing those state enterprises which cannot be improved or transferred to the private sector.

Policies:

In the Third National Economic and Social Development Plan, Government policies for state enterprises are as follows:

1. The Government will support the continuation of the following state enterprises:

a. Large public utility state enterprises which are essential for the public welfare and national development.

b. State enterprises which require large capital investment with unattractive rate of returns for private investors. However, in the long run the share holdings will be sold to private investors through the stock market.

c. State enterprises which are essential to the security of the nation, monopoly state enterprises which are major sources of Government revenues, and state enterprises established to promote the occupation of Thai citizens.

d. State enterprises established to prevent monopolies by a minority of producers or for price stabilization.

2. The Government will neither establish new industrial or commercial state enterprises, nor expand existing ones to compete with private enterprises except those which will be of unquestionable benefit to the public and national security.

3. Adjustments will be made in the implementation of the state enterprises policy to be consistent with the National Economic and Social Development Plan, with particular emphasis on management capability.

4. There will be control of the investments expenditures of the state enterprises, so that their investments will conform more closely to the Government's financial policy. All state enterprises will be encouraged to formulate plans and programmes of operation to serve as guidelines for the improvement and expansion of their work.

5. The operation of existing state enterprises will be reviewed for effective implementation of the established policies and objectives.

Direction

In order to implement these policies, the following actions have to be taken:

1. All state enterprises' objectives and operation will be reviewed to determine whether Government support is justified.

2. Regulations controlling the investment expenditures of the retained state enterprises have to be revised, particularly the State Enterprises Finance and Accounting Regulation Act of 1961, and the State Enterprises Investment Expenditures Act of 1964, in order to encourage flexible management decision making.

3. In cases where continuation of the enterprises does not seem justified, their operations and financial status will be reviewed. On the basis of these studies, a decision will be made as to whether the enterprises should be improved, disposed of, or closed.

4. The state enterprises will be requested and encouraged to make plans for future investment and production, consistent with market demand and changes in production techniques. They will also be encouraged to prepare appropriate financial plans and accounting so that the management will be well informed on the financial status of the establishment.

5. Regulations will be promulgated concerning the disposal of state enterprises and the increase of capital consistent with the Government's policies. A responsible party will be designated to make proposals to the cabinet in regards to the improvement, transfer or disposal of state enterprises.

6. The investment expenditures of all state enterprises will be controlled to encourage increased contribution of their earnings to the Government. If it is deemed necessary by the state enterprises to keep their profits for flexible management, their investment plans will have to be submitted for approval to the National Economic Development Board.

7. Those state enterprises which operate efficiently, according to the revised policy and objectives, will be supported so that they can make valuable contributions to the economic and social development of the country.

8. State enterprises will be encouraged to seek self-financing by selling bonds which will also help to promote the capital market.

9. Encouragement will be given to state enterprises to cooperate with the private sector in activities which need investment capital and management experience.

Investment Targets

During the First and Second Development Plan periods, substantial investment had been made in state enterprises' development projects. Such investment is presently nearly completed, and has contributed a great deal towards higher productivity and better services. Nonetheless, there remains further need of expanding state enterprises' activities, particularly in respect of water works, electricity, railway and telephone. Not only do those enterprise directly serve the public, they are also beneficial for other development acitvities and the general welfare of the people.

The production and investment activities of state enterprises during the Third Plan will, therefore, be concentrated mainly on public utilities and services as follows:

1. **Agriculture:** State enterprises' agricultural activities consist mainly of the Forest Industry Organization, the Rubber Plantation Organization, the Fish Marketing Organization, the Refrigeration Plant and Ice Factory Organizations and generally concentrate on promoting agricultural occupations and preserving natural resources.

TABLE 5-3
State Enterprises Planned Sources And Uses of Funds, Expenditures and Financing During The Third National Economic and Social Development Plan
1972-1976

(million baht)

	Agriculture Sector	Industry Sector	Transports. Com. Sector	Power Sector	Commerce & Service Sector	Other	Total
Capital Investment							
1. Development Proj.	111.50	—	6798.97	8521.10	—	2150.00	17581.57
2. Non-dev. Projects	132.25	784.03	247.50	1521.63	705.95	284.00	3675.36
Total	243.75	784.03	7046.47	10042.73	705.95	2434.00	21256.93
Financing Resources							
1. Own resources	182.04	770.03	3018.20	3871.84	700.95	244.00	8787.06
2. Gov't Grants	50.15	—	423.02	194.62	5.00	260.00	932.79
3. Gov't Loans	11.56	14.00	64.00	3188.09	—	980.00	4257.65
4. Foreign Loans of Credit	—	—	3537.05	2680.28	—	950.00	7167.33
5. Foreign Grants	—	—	4.20	107.90	—	—	112.10
Total	243.75	784.03	7046.47	10042.73	705.95	2434.00	21256.93
Operating Data Income							
1. Income	2372.77	24145.02	20389.90	25963.63	15143.00	9356.93	97371.25
2. Expenses	1867.37	18928.43	18110.89	21234.39	14217.25	8385.04	82743.37
3. Profits (Loss)	505.40	5216.59	2279.01	4729.24	925.75	971.89	14627.88
4. Depreciation	183.70	800.00	2184.41	2330.22	304.24	39.60	5842.17
5. Total Net Profit & Depreciation (3+4)	689.10	6016.59	4463.42	7059.46	1229.99	1011.49	20470.05
Use of Investment Potential							
1. Dev. Projects	49.79	—	2770.70	2350.21	—	—	5170.70
2. Non-dev. Projects	132.25	770.00	247.50	1521.63	700.95	244.00	3616.33
3. Contri. to Budget	390.07	3481.57	472.63	297.49	321.96	730.18	5693.90
4. Debt Repayment	—	58.00	617.89	2467.22	—	—	3143.11
5. Working Capital Increase Cash Increase	115.99	1707.02	354.70	422.91	207.08	37.31	2845.01
Total	689.10	6016.59	4463.42	7059.46	1229.99	1011.49	20470.05

It is estimated that the total capital investment for agricultural state enterprises during the Third Plan would be 244 million baht; 181 million baht from state enterprises' own resources, 49 million baht from Government grants, and 14 million baht from Government loans. Of the total 244 million baht capital investment, approximately 111 million baht will be allocated to finance development projects.

2. Transportation and Communications. Activities of state enterprises in the Transportation and Communications Sector are very important for economic development and require large investments. There are altogether eleven state enterprises in the field of transport and communications. They are the State Railway Organization of Thailand, the Port Authority of Thailand, the Telephone Organization of Thiland, the Express Transportation Organization, the Thai Airways International Co., Ltd., the Thai Airways Co. Ltd., the Transportation Company Limited, the Aeronautical Radio of Thailand Limited, the Thai Maritime Navigation Co. Ltd., the Thai Navigation Co. Ltd., and the Thai T.V. Co. Ltd. During the Second Plan period, 4,300 million baht has been invested by the Government in state enterprises in the Transport and Communications sector in order to expand and improve public services.

For all these state enterprises it continues to be necessary to expand their services during the Third Plan period to meet the growing needs of the public and to improve their services in terms of convenience, facility, and speed. A total amount of 7,046 million baht has been earmarked as capital investment during the Third Plan period, which is 39 per cent higher than that spent in the Second Plan. Of this total amount, it is expected that 3,018 million baht will be raised from the public enterprises' own resources, 487 million baht from the national budget, 3,018 million baht from foreign loans and 4 million baht from foreign grants. The total 7,046 million baht of capital investment include approximately 6,799 million baht to finance development projects.

3. The Power Sector

The state enterprises in the power sector contribute to the rapid expansion and growth of industry, agriculture, commerce and business. They are large in size, and require substantial investments on which the return is obtained over a long time period. They are, therefore, not attractive for private investment . At present there are three enterprises in operation in this sector, namely, the Electricity Generating Authority of Thailand: the Metropolitan Electricity Authority; and the Regional Electricity Authority. During the Second Plan period development funds of 4,300 million baht were allocated initially for the expansion of electricity generation and distribution to meet the growing needs of the public and industries. Reduction of electricity production and distribution costs has been attempted. During the periods 1967-1969, and 1970-1971, the actual investment of the Government had reached the total of 4,800 million baht, which was higher than that allocated in the development budget of the Second Plan. This was due to the increasing electricity consumption by both the public and industry, which compelled the Government to make mid-plan increases in the investment funds for several projects in the power Sector.

The need for electricity is still high during the Third Plan due to the continued economic expansion. The total capital investment for state enterprises in the power sector has been earmarked at 10,043 million baht, of which approximately 8,521 million baht will be allocated to finance development projects. Of the total capital investment, 3,872 million baht will be derived from state enterprises' own revenue, 195 million baht from Government grants,3,184 million baht from Government loans, 2,680 million baht from foreign loans and credits and 108 million baht from foreign grants.

4. **The Industrial Sector.** The importance and the role of state enterprises in the industrial sector will be declining. The major part of investment in such state enterprises will focus on helping them to become self-supporting so as to avoid being a burden upon the national budget. The abolition of such enterprises will be proposed to the Government in case they are considered ineffective in their operation, and in case it is not in the interest of the Government to retain them. This will be done through the transfer of ownership to the private sector or by selling share to the public. Any investment intended to compete with private business will be absolutely forbidden. The state enterprises which deserve Government support for continuation should be those that provide the Government with needed revenues and those which are earning a good profit, as well as those producing goods to meet military requirements. Any industrial state enterprise which duplicates one already operated by private business will have to be either transformed into a public company or sold to the private sector, unless that particular state enterprise is established to provide public utilities or for national security.

The total capital investment for state enterprises in the Industrial Sector during the Third Plan has been estimated at 784 million baht, of which 770 million baht will be derived from state enterprises' own earnings, and 14 million baht from Government loans. Most of the investment expenditures will be channelled to the Tobacco Monopoly, Ministry of Finance. Most of the state enterprises in this sector will invest in current activities considered to be non-development projects.

5. **Commerce and Service Sector:** The relative importance of state enterprises in the commerce and service sector has declined during the Second Plan. This can be witnessed by the fact that such state enterprises as the Changwat Companies under the authority of the Ministry of Economic Affairs, established to assist and stimulate commercial activities among Thai people, have only exercised a limited role as agents for sale of common products such as cigarettes and liquor. At present some of these companies have sold shares and turned into privately held companies. Other state enterprise activities in the service sector, such as the Tourist Organization of Thailand, which provides services to tourists, are operating at a loss and have to be partly subsidized by the Government. Some state enterprise, such as the Fuel Organization, are self-supporting and able to provide revenue to the Government.

During the Third Plan, the total capital investment of the state interprises commerce and service sector will be 706 million baht, of which 701 million baht will be derived from the state enterprise's own earning, and 5 million baht from Government's grants. Most of capital investment will be allocated for current activities which are non-development projects.

6. **Others:** During the Second Plan, the Metropolitan Water Work Authority, a state enterprise for public utilities, has been established by merging of four water work authorities, namely the Bangkok Water Works Authority, the Thon Buri Water Works Authority, the Samut Prakan Water Works Authority and the Nonthaburi Water Works Authority. Although investment requirements for this public utility are high, with a low rate of return, the undertaking is extremely important for the welfare of people in the metropolitan area. Thus each year losses have to be subsidized by the Government, until management and services are substantially improved and the rate structure stabilized. Apart from the Metropolitan Water Work Authority, two social service public enterprises, namely the Dusit Zoo Organization and the State Pawn Shop, are operating at a loss and have to be subsidized by the Government's budget. The Government Lottery Bureau is a state enterprise which is self-supporting and is able to contribute revenue to the Government.

During the Third Plan, the total capital investment of these state enterprises will be 2,434 million baht, of which 244 million baht will be derived from their own earning, 260 million baht from the Government's budget, 980 million baht from Government's loans, and 950 million baht from foreign loans and credits.

Most of the capital investment, totalling about 2,150 million baht, will be channelled to finance the more important projects of the Metropolitan Water Works Authority already approved, in principle, by the Cabinet.

Earnings, Expenditure and income Contribution to the Government

Earnings and Expenditures: The financial performance of state enterprises during the Second Plan period and projection for the Third Plan can be given by sector as follows:

1. **Agricultural Sector.** Total earnings target for state enterprises in the agricultural sector during the Third Plan is 2,490 million baht of which 1,810 million baht are for expenditures and 680 million baht are profits. From actual performance during 1966-1968 and estimates for the years 1969-1970, the earnings of this sector are 2,630 million baht and expenditures 2,000 million baht. The net profit is 630 million baht, a figure close to the prior estimate.

During the Third Plan (1972-1976), the earning target is 2,370 million baht and expenditure are estimated at 1,870 million baht, giving a net profit of about 500 million baht. The target net profit figure during the Third Plan is lower than the Second Plan due to some indirect investment projects which will not yield revenue immediately, but from which valuable benefits will occure over a long time period. Some of these projects are the programme for reforestration under the supervision of the Forest Industry Organization, Rubber Replanting Programme under the supervision of the Naborn Rubber Plantation Organization. Moreover, the Forest Industry Organization, which previously contributed substantial revenue for the State, is earning less due to the transfer of forestry rights to Provincial Forest Companies according to the Government's policy.

2. **Transportation and Communication Sector.** During the Second Plan, the total appropriation for this sector was 8,500 million baht, 7,000 million baht expenditure and 1,500 million baht net profit. From 1966-1968 records and estimates for 1969-1970, the earnings were 1,200 million baht, while expenditure were 9,300 million baht. The net profit was 1,900 million baht, a figure higher than the target. This is due to completion of some investment programmes during the Second Plan which resulted in higher revenues.

The total income earnings from the transportation and communication sectors during the Third Plan is estimated at 20,400 million baht or 82 per cent higher than during the Second Plan, while expenditure estimates are 18,100 million baht and net profit are estimated at about 2,300 million baht. This is due to the fact that most of the state enterprises in the transportation and communication sector are public utilities, such as the Royal Thai State Railways, the Thai Harbour Authority and the Telephone Organization of Thailand. Their prime objectives are to provide services and benefits to the public which justify Government support in terms of loans and grants.

3. **Energy Sector:** Total earnings target for the energy sector during the Second Plan was 9,600 million baht, consisting of 7,500 million baht expenditures and a net profit of 2,100 million baht. From previous records for 1966-1968 and estimates for 1969-1970, total earning in this sector is 12,300 million baht, of which expenditures are 10,100 million baht and net profit 2,200 million baht. The profit figure is higher than was anticipated during the plan by only 100 million, or about 5 per cent of the projected figure. Although the actual expenditures in this sector are higher than planned by 11.63 per cent, many projects under the Second Plan have not been completed and thus overlap the Third Plan. Hence, the actual performance cannot be evaluated during the Second Plan period.

It is estimated that some of the continuing projects from the Second Plan will be completed during the Third Plan, thus increasing earnings during the Third Plan. The earnings for the sector are estimated to be 25,900 million baht; expenditures of about 21,200 million baht and a net profit of about 4,700 million baht, about twice the figure in the Second Plan period. The substantial increase of the profit figure of state enterprises in the power sector does not by any mean imply that the objective of the sector is profit maximizing. During the Third Plan, however, part of the profit has to be repaid as principal and interest for loans made both from foreign and local sources, and also are to be used for other new projects. This borrowing lessens the burden on the budget appropriation from the Government. Moreover a reduction of the power rate has to be made to stimulate industrial development.

4. **Industrial Sector:** State enterprises in the industrial sector received less emphasis during the Third Plan, so as to comply with the Government's policy objective to promote private investment. Therefore, the development budget for state enterprise in this sector will be decreased from the Second Plan's figure. Most of it is for improving and maintaining the existing machinery and there are no major programmes for new expansion of industrial production. Total sector earnings during the Second Plan were 21,200 million baht, of which 17,300 is expenditure and a net profit of 3,900 million baht. From previous records during 1967-1969 and estimates during 1970-1971, total earning is 17,900 million baht, of which 14,000 million baht is expenditure and a net profit of 3,900 million baht.

5. **Commerce and service sector:** During the Second Plan, it is estimated that total earning for this sector were 560 million baht, which consisted of 540 million baht expenditure and 20 million baht of net profit. From records for 1967-1969 and estimates of 1970-1971, the earnings are 15,000 million baht, while expenditures were 11,800 million baht and net profits are 2,200 million baht. The relatively high figures for earning, expenditures and net profit for the commerce and service sector during the Second Plan was because accounts from the Bureau of Lottery and the Metropolitan Water Work Authority were not included in the original estimates.

Total earnings target during the Third Plan is 15,100 million baht which consists of 14,200 million baht expenditure and 900 million baht net profit. The increase of projected earning, while profit decrease, is due to the fact that many state enterprises in this sector are not directly concerned with profit maximization. .The Fuel Organization is one of the state enterprises in this sector which contributes most to the Government's revenue.

6. **Others:** Total earning from other sectors during the Third Plan are estimated at 9,300 million baht, consisting of 8,400 million baht expenditure and 900 million baht net profit. The projected increase of earnings and decrease of profit are due to the fact that some state enterprises are still running at a loss, particularly such large state enterprise as the Metropolitan Water Works. This is attributable to the high cost of production and distribution, and management problems, particularly in collection of charges.

The Bureau of Lottery is the state enterprise which contribute most to the Government.

Contribution to the Government.

Earning contributions to the Government are made from the previous year's accounting, where 25 per cent of the total earning have to be subscribed to the state according to the resolution of the Cabinet. This 25 per cent is equal to the income tax rate levied on private corporations, with exemption provided for some Government organizations. It is deemed appropriate that state enterprises which are operating at a profit should contribute their earnings to the Government which provides capital investment. However, in each case the investment plan of the state enterprise will be taken into consideration to determine whether it is consistent with the National Economic and Social Development Plan.

The projected earnings from state enterprises during the Second Plan are 3,300 million baht, excluding money and banking institutions. However, from actual performance in 1967-1969 and estimates for 1970-1971, the earnings showed an increase figure of 4,500 million baht or an increase of about 36.35 per cent above the projected figure. This contribution consists of 330 million baht from state enterprises in the agricultural sector, 2,400 from the industrial sector, 400 million baht from the power sector, 430 million baht from the transportation sector, and 960 million baht from the commerce and service and other sectors. Most of the contribution are derived from the Thai Tobacco Monopoly, totalling 2,235 million baht, the Bureau of Lottery—743 million baht, the Fuel Organization—198 million baht and 27 other state enterprises—1,019 million baht. During this period an additional 2,688 million baht of capital investment was allocated by the Government, of which 1,527 million baht were Government grants and 1,161 million baht were Government loans. The Bureau of Lottery, which is classified in other sectors, will contribute about 730 million baht to the Government's revenue, representing a decrease of 0.02 per cent. It is also expected that state enterprises in the power sector will contribute only about 300 million baht, which is less than in the past. Since state enterprises in this sector are large public utility undertakings and involve large capital investment of about 10,043 million baht during the Third Plan, these state enterprises have to channel part of their earnings to finance their investments in order to relieve the burden on the Government budget and thus make lower contributions to the State. In addition, a substantial portion of their earnings is also to be used as payment on capital borrowed during the First and Second Plan periods. During this Plan it is expected that about 3,200 million baht of capital investment will be allocated by the Government to state enterprises, of which approximately 1,000 million baht will be Government grants and 2,200 million baht will be Government loans.

CHAPTER 6

REGIONAL DEVELOPMENT

Implementation of Regional Development Work during the Second Plan period:

One of the main development policies stated in the Second Plan was to spread development efforts to reach the rural population in various regions, particular efforts being made in remote rural areas. Two important measures have been taken to implement this policy:

1. **The Allocation of the Development Budget:** The Government has increased the development budget for the basic infra-structural programmes in the rural areas, e.g. transportation system, irrigation, power, public health, education etc. In addition, the Government has initiated and expanded programmes which directly support rural development, e.g. accelerated rural development programmes and community development programmes.

2. **Regional Development Planning:** Apart from the allocation of development budget for rural development during the Second Plan period, the Government has initiated regional planning for the North and Northeast as a tool to accelerate regional development during the Third Plan period. As for the Northeast, provincial level planning has been carried out for the 15 Norheast provinces for the first time.

Evaluation of Regional Development during the Second Plan period:

Regional development during the Second Plan period can be summarized as follows:

1. **Production.** The value added for agricultural product has declined partly due to the 1967-1968 drought and partly due to the reduction of demand for Thai agricultural products in the foreign markets, particularly rice and rubber during 1969-1971. The policy of spreading the fruits of development to the rural people has been severely hampered since agricultural production is their main source of income. When the value added of the agricultural sector increased at a lower rate, the development of the rural area also progressed more slowly even though the total production rates in all regions were relatively high.

TABLE 6-1

Gross Regional Product

unit: million baht
constant 1962 prices

		1967[1/]	1968	1969	1970	1971	Average Rate/ annum
Whole Kingdom	GRP	94109.3	102377.5	112377.5	119100.6	126365.7	
	rate	5.5	9.0	9.6	6.0	6.1	7.2
Northeast	GRP	15728.2	16970.7	18925.0	20060.0	21424.0	
	rate	—4.7	7.9	11.5	6.0	6.8	5.5
North	GRP	14196.5	15720.7	17050.2	18026.6	19180.5	
	rate	2.5	10.7	8.5	5.7	6.4	6.8
South	GRP	11726.5	12927.9	14089.3	14814.5	15324.8	
	rate	5.5	10.3	9.1	5.0	3.4	6.7
Central/including East & West	GRP	52458.1	56959.1	62313.0	66199.5	70436.3	
	rate	9.9	8.6	9.4	6.2	6.4	8.1

[1/] **Remarks:** 1967 was a drought year.

2. **Income:** The income levels in various regions differ greatly. In 1960 the average income per capita of the Northeast was 1,750 baht, while that of the Central Region was 6,515 baht. The income per capita of the Northeast was increasing at 2.8 per cent per annum but that of the Central Region was increasing at 6.0 per cent per annum. If can be seen that the efforts to distribute income evenly among various regions had not been successful. If the present trends are allowed to continue the income gap will become even wider. Moreover, if the income of the urban people and that of the rural people are compared, the income gap can be clearly seen. If can be concluded that the development effort in the past has failed to distribute income evenly to the people in various regions.

3. **Social Conditions:** Social development was a very heavy burden for the Government during the Second Plan period, although the Government has put emphasis on this activity. However, the social problems have increased tremendously in education, public health, housing, social welfare, land distribution, the migration of people into urban areas, the security of life and property and other social problems. The people in the rural areas still have a very low income and living standard, hence there is both economic and social pressure on their way of life. This results in migration of people to seek jobs in the urban areas, leading to the worsening of urban problem, particularly those of living conditions, housing and public utilities of all sorts.

It can be concluded that, although the Government has accelerated rural development in the various regions during the Second Plan period, present data indicate that the income gap between the people in various regions has increased throughout the Second Plan period.

Goals and strategies for Regional Development in the Third Plan:

Goals: The main goals of the Third Plan are as follows:

1. To bridge the gap in income and living conditions of the people by implementation of various regional development programmes. However, it takes some time to bridge the income gap.

2. To lay down a good foundation to narrow the income gap gradually during the Third Plan period.

Development Strategies: In order to realize the above goals, the Third Plan set the following strategies:

TABLE 6-2

Income per Capita by Region

(Baht)

		1967	1968	1969	1970	1971	Average Rate/ Annum
Whole Kingdom	IPC	3165	3323	3578	3620	3840	4.6
	Rate	3.0	5.0	7.6	1.2	6.1	
Northeast	IPC	1486	1663	1735	1750	1840	2.8
	Rate	—8.3	12.0	4.3	0.9	5.2	
North	IPC	2248	2288	2464	2475	2620	3.3
	Rate	0.7	1.8	7.7	0.5	5.9	
South	IPC	3072	3222	3512	3568	3622	4.2
	Rate	4.0	4.9	9.0	1.6	1.5	
Central/including East & West	IPC	5730	5919	6405	6515	6970	6.0
	Rate	8.6	4.3	8.2	1.7	7.0	

1. **Toaccelerate agricultural production in compliance with market situation:** During the Third Plan period agricultural production will be accelerated. Agricultural production is targetted to reach a rate of increase of 5.1 per cent per annum as against 4.2 per cent in the Second Plan. The allocation of development budget for agriculture will receive high priority, the target being to increase these allocations at the rate of 8-10 per cent per annum.

2. **To increase income in the rural areas:** The rate of construction of major infra-structure projects will be scaled down so that resources can be diverted to labour intensive projects in the rural areas, particularly irrigation water distribution projects and other social services projects. In addition, the Government will encourage the establishment in the rural areas of factories which use agricultural products as raw materials. This is to increase rural employment and to build up markets for internal agricultural products.

3. **Population Policy:** The Government has a policy to lower the population growth rate by carrying out family planning programmes. In addition, the Government will build up development growth centres in various regions to absorb labour force from the agricultural sector.

4. **Tax Measures:** During the Second Plan period, farmers had to bear a great tax burden in the form of the rice premium and other indirect taxes. As a result, the real net income of the farmers is lower than it should. During the Third Plan period there will be changes in the tax structure of the country to relieve the tax burden on the farmers and to increase tax collection from the high income groups in the urban areas. Moreover, the Government will provide more social services to the rural people. This will be one measure to reduce disparity.

5. **To increase rural development programmes:** The programmes to be increased include the Accelerated Rural Development Programme, Community Development Programmes, Land Development Programme, Health programme and Compulsory Education Programme, Moreover, there will be development programmes in various communities to increase employment in the region.

Development Strategy by Regions: For the Third Plan period the National Economic Development Board has prepared comprehensive regional plans for the North and Northeast. For the Northeast Region the NEDB has also prepared changwat development plans for the 15 provinces in the Northeast along with the Northeastern regional plan. This is to integrate local requirements to fit in the broad regional and national plan framework. Regional planning will also be carried out for other regions during the Third Plan period, particularly for the South and the West.

The development strategy for each region arises basically from the geography and natural endowments of each region. Inter-regional plans should also be considered to take account of comparative advantages.

Development Strategy for the Central Region: The Central Region is largely a low plain with many developed irrigation systems and is, therefore, well suited for agriculture development, particularly rice. However, rice has poor world market prospects. The strategy for the development of the Central Region is to grow more of other crops that have high foreign demand during the second cropping season, e.g. soy bean, groundnut, corn, cotton, etc. During the Third Plan period there will be potential development of the upper Chao Phraya Basin through second cropping in an area of 1.3 million rai. This region is also connected with the seashore area which is most suitable for shrimp farming. Shrimp is a commodity with high internal and external demand; moreover, this region is the industrial base of the Kingdom since its location is ideal for exports to other regions and abroad. During the Third Plan period it is essential to accelerate industrial development in this region, particularly agro-industry, e.g. feed industry, edible oil industry, canning industry, etc.

Development Strategy for the Western Region: The West is richly endowed with natural resources, e.g. timber, water, various minerals, etc. The strategy for the development of the Western Region is to make use of these resources more fully. The West is also generally suited for agriculture; efforts should be made to raise agricultural production, e.g. various crops such as sugar cane, and fruit trees. This region still has vast empty lands which are most suited for pasture for livestock development. Moreover, this region has exotic natural beauty, e.g. woods and seashores which can be turned into tourits attractions. The main development targets in this region are transportation and agricultural development.

Development Strategy for the Eastern Region: The Eastern Region is of utmost importance in overall national economic development. The Eastern Region being connected by road with the Central Region and the Northeastern Region and by railroad with the Northeastern Region in the future, has very high potential for further development, particularly in the areas of industry and commerce along the seacoast. Deep-sea commercial ports will all be located in the region. The strategy for the development of the Eastern Region is to concentrate on agricultural, commercial and industrial development. Agricultural development should concentrate on tapioca, sugar cane, coconut and other fruit trees since this region has comparative advantages. The region, being connected with the seashore, can further expand its fishing industry and shrimp-farming. In addition, it is located near Bangkok and has exotic mountains and seashore; tourism, therefore, is another potential industry. The Upper Eastern Region and the border areas are generally poorer. The strategy for their development is to build up more basic infra-structure and to promote various occupations.

Development Strategy for the Southern Region: The South has a distinct geography, and a distinct economic and social system, particularly along the border provinces. The Government always considers the Thai people in the South on the same basis as Thais elsewhere in the Kingdom. The main policy of the Government is to accelerate economic and social development in the South. The economic life of the South is still very much tied up with tin and rubber production. The strategy for the development of the South is to boost up tin and rubber production through the expansion of rubber replanting schemes and improvement of tin mining methods. Great efforts should be made to survey more tin deposits, other mineral deposits and petroleum deposits. The population density in the South is fairly high but the land is fertile, suitable for various crops and fruit trees. Planting fruit trees should be widely encouraged. The South has very long seacoasts and consequently the fishing industry can be developed into a very important occupation. In this regard, the Government has already decided to build and expand many fishing wharves in the South. The development strategy of the South should also give emphasis to social development, e.g. settlement schemes, education, and health.

Summary of the Northern Development Plan (1972-1976):

1. Basic Findings: Economic and Social Conditions of the North:

Despite a wide array of natural, socio-economic and cultural variables found in the aggregate of the sixteen Northern provinces of Thailand, a cliche image of a typical rural region, by and large breaking through the subsistence level stage, is a distinct characteristic of the Northern Region as a whole. The disparity between the estimated average GDP per capita in the Northern Region and other regions (except the Northeast) may be attributed at least partly to the considerable share of peasantry in the North still living close to the level of subsistence economy. On the basis of average yields, family sizes and consumption patterns it may be assumed that marketable surplus of rice from monocultural paddy holdings of 10 rai and less is either negligible or nil. In 1970, the average farm size was 14.3 rai as compared to

16.1 rai in 1963 . It indicates that the average farm size has decreased due to the population growth of the region; this is a major constraint to future economic growth. If the population growth of the North continues to increase at the rate of 3 per cent per annum, it is expected that by 1976 there will be an increase of 1.25 million persons in addition to the present population of 7.5 million. The labour force during the next 20 years will increase by 200,000 people per year, most of them working in the rural areas.

The main problem facing economic development in the North is the rapid increase of population in relation to the expansion of the agricultural sector and related activities. In the next five years total expansion of the existing rural labour force would be slightly above 12 per cent. In terms of average size of households, at least 120,000 families would be in search of farms in rural areas of the North. This is on the assumption that at least 80,000 families will draw their income from urban occupations. It is mandatory to create new jobs in the rural zones of the region, mainly in agriculture, but in other occupations as well, such as supporting economic and social services, when their rural location is economically justified.

To respond fully to the imperatives of demographic growth while complying with the national target/of increasing farm income, the expansion of the agricultural sector in the Northern Region should proceed at an average rate of at least 6.5 per cent per annum. The target of 6.5 per cent in the agriculture sector for the period 1972-76 would call for more effective use of all available resources in the region. There is evidence that some of these resources thus far have remained partly idle.

2. **Agriculture Development:** The rate of increase of the value of output per rai of presently cultivated land is conservatively projected at the rate of 3.5-4 per cent per annum. It is necessary to accelerate agricultural development in the North by gradual shifting from predominantly paddy land use to diversified cropping patterns. Emphasis will be placed on foreign currency earners such as maize, soy bean, groundnut, cotton and tobacco.

a. **Paddy:** The target of 2.6-2.8 per cent annual rate of growth of output would be attained by increase of yield levels within the existing paddy area. New irrigation schemes in the North envisaged for 1972-1976 will begin supplying water to 1-1.5 million rai of paddy which is so far non-irrigated, thus bringing up the total irrigated area in the North from 3.5 million rai to 4.5-5 million rai.

Improvements in the distribution system within the existing irrigation schemes will increase yields. Introduction of high-yielding rice varieties accompanied by technological improvements will be furthered. Those changwats where local rice production does not meet the local demand will be given priority in implementing yield increasing projects. Improved village type rice mills, replacing the traditional system, will increase the percentage of the higher quality marketable product obtaining higher prices on national or international markets. The withholding capacity of small producers, presently compelled to sell out their paddy at the lowest prices right after the harvest, will be encouraged by improving both storage and credit facilities.

b. **Cotton:** In 1968 (2511) the share of the Northern Region in cotton production of the Kingdom was 68 per cent. A year later the output began to decline drastically, the main cause being the inadequate and costly insect-control methods used at that time. Physical patterns of new settlements in the uplands will permit pest-control by using mechanical devices on sizable blocks of cotton land. As a joint venture of self-help land settlement division and the Agriculture Extension Department a pilot area of about 25,000 rai has been delineated in the uplands to be planted in 1972. The most promising conditions are found in the provinces of Phitsanulok, Nakhon Sawan, Sukhothai and Chiang Mai.

c. **Tobacco:** The North produced, in 1970, 19,000 tons of Virginia tobacco, out of which 11,000 tons were exported and the balance consumed by the domestic market. Despite the potential for expanding Virginia output the value of import of this kind of tobacco has reached an impressive amount of 470 million baht, while the value of exported Virginia attained only 200 million baht. The imported Virginia seems to be of a superior quality, thus substituting local tobacco for the imported would require slight changes in smoking habits. A conservative projection of the increment in domestic consumption and exports indicates the possibility of improving the economic status of existing small holding in the North, by promoting tobacco growing during the dry season. Employment impact of additional Virginia areas will be particularly important because of the labour required for its curing, sorting, packing, etc.

d. **Maize and Sorghum:** During the Third Plan period, the area of maize (and in a small part of sorghum) will be in the upland, during the monsoon-rainy season and also in the lowland as second crop under irrigation. The use of improved "synthetic" varieties, and also partly of hybrid varieties will increase the yield level in both lower and high lands. Additional seed production and multiplication centres will be developed.

e. **Oil Seed:** Distribution of better varieties, currently carried out by the Ministry of Agriculture, should be encouraged; inoculation of soil with specific chemicals to control bacteria should be expanded. Under the prevailing agro-technical conditions groundnut output per rai average 200-220 kg. as compared with 150 kg. per rai of soy bean. Large scale experiments conducted in the North indicate that the selected varieties "Sukhothai" and "Lampang", if given adequate care, can produce 300-350 kg. per rai. From the viewpoint of oil extraction industries to be expanded in the region, groundnuts has some advantages over soy bean. Domestic demand for oil cake is low, therefore, it is preferable to export cake. The current price for groundnut oil is higher than for soy bean oil. During 1972-1976 the area of groundnut in the Northern Region should be doubled. Soy bean shall be promoted alongside groundnuts for several reasons: different oil requirement, well established export markets (Japan), continuity in exporting non-processed oil seed. It may be envisaged that attaining 200-250 kg. per rai and 20 per cent of oil content, soy bean might reach a break even point whereby it could substitute for certain rice fields in the North which yield less than 350 kg. per rai.

f. **Livestock:** The regionally produced livestock is mainly consumed locally, and there are at least four reasons: small volume of production, medium quality of beef, restrictions imposed on inter-changwat transportation of meat and endemic foot and mouth and other diseases. The low prices fetched on the local market for beef would suggest that extra-regional export prospects are favourable if quality is improved, whereby increased consumption of pork and fowl would replace the beef consumed locally. Veterinary control and supervision, as practiced by municipal authorities, is insufficient and calls for more effective arrangements. Dairy cattle increase in the region is fully justified in view of the regional comparative advantages and the need to begin restricting the impressive imports into the Kingdom reaching about 750 million baht per annum. The Thai-German Dairy Centre has attained a series of positive results and is now in its third stage.

g. **Fisheries:** In this region, where animal protein components in the diet of rural population is insufficient, and rivers, large water bodies and canals abound, promoting fresh water fishing is urgently needed.

h. **Forestry:** Indiscriminate depleting of forest reserves in the past has resulted in drastically reducing the economically significant forest areas and at the same time lowering the average age of valuable sdecies well below their economic size. Low economic value and scrub forested areas are estimated at 4,330 sq.km., while the total area of teaks plantations done by the Government attained in 1970 only 207 sq.km. — an annual addition of 32 sq.km. only. The current administrative procedure for delimiting "forest reserve" areas has to be accelerated if illegal squatting followed by "slash and burn" type of agriculture is to be stopped. Rough estimates point to the distressing fact that 14 million rai of scrub and forest upland has been spontaneously resettled by squatters. Pine planting projects should be encouraged so as to have an early supply of raw material for pulp and paper.

3. Industrial Development:

a. **General Industrial Development:** The slow rate of industrialization of the Northern Region was due to two main inhibiting factors: The market forces exercised a pressure towards concentrating industry in the Bangkok-Thon Buri area, and there was deficiency in incentives established by the Government to attract industry to the North.

Industrial development in the Northern Region will largely depend on availability of public funds needed for expanding the infra-structure and private capital and enterpreneurship needed for establishing and operating new industries.

b. **Identification of Specific Projects:** The following projects are proposed for the North.

(1) Edible vegetable oil industries.
(2) Forestry products.
(3) Integrated slaughtering and freezing units.
(4) Canning factories — fruits and vegetables.
(5) Small scale cast iron plants.
(6) Cottage industries.

4. Transportation Development:

a. **National Highways:** The skeleton network of national highways is nearly completed. The proposed north-south axis links the urban centres of Den Chai, Uttaradit, Phitsanulok, Phichit, Taphan Hin and Takhli as well as three east-west links, namely, Lampang-Phrae, Kamphaeng Phet-Phichit and Lom Sak-Chum Phae. The Highway Department plan for 1972-1976 call for the construction of 896 km. of new national highways in the North, the expenditure being estimated at 1,249.6 million baht..

b. **Feeder Roads:** A network of feeder roads should follow in the North the traditional pattern of tracks and trails. Improvement of some of the main trail connections to standards of single lane road supported by lay-by's at regular internals would suffice for the first stage. Coordination among the various agencies engaged in feeder road construction is essential. Some 1,468 km. of feeder road were proposed for construction in the North by the Highway Department between 1972-76, with a total budget of 909.8 million baht. About 400 km. of paved feeder roads were proposed by the Royal Irrigation Department and more than 2,500 km. of unpaved rural feeder road are proposed for construction by the office of Accelerated Rural Development.

c. **Railway:** Further technical study and cost benefit analysis should be completed before a decision is made to provide a railway in Chiang Rai province.

d. **Airways:** The rising flow of tourists visiting Chiang Mai by air, and the prospects for further promoting touristic attractions in and around the capital of the North, both for local and foreign tourists, strongly supports the expansion of the local airport into a medium size international airport. The Northern Region is well served by a network of local airfields for domestic flights. Additional airfields are not required in the foreseeable future. Improvement of some of them, e.g. Nan and Phrae, seems to be timely.

e. Waterways: The importance of this mode of transportation in the North has become rather limited, especially after the construction of the Bhumibol and Sirikit dams. However, the Royal Irrigation Department should be urged to implement its river training plans for the Nan River below the Sirikit Dam, which would make it navigable down to Nakhon Sawan. The Ping reservoir, which extends as far North as Amphoe Hot, may well serve as a transportation link between Mae Sariang-Om Koi-Hot areas and highway No. 1 near Tak. Recent findings concerning ore deposits and the timber potential of these areas suggest the promotion of a cheap mode of transportation. Another navigation waterway in the North is the Mae Kok in Chiang Rai.

5. Minerals Development

Recent findings of the German Geological Mission indicate the existence several ore deposits in different remote and accessible areas of the North. Tin, tungsten, and beryllium, the most precious minerals found in the North of commercial value, could not possibly further be explored let alone exploited, particularly in the areas between Mae Sariang and Mae Sot or near Wiang Pa Pao, without improving access roads. Almost as important as the construction of access roads is better cooperation between miners and the Department of Mineral Resources.

6. The Development of Highlands

The highland zone, particularly of the Northern Region, differing as it does in most aspects from the remainder of the country and having its own unique social and development problems, requires separate consideration when planning social and economic development.

a. Social Development: The highland people are ethnically and linguistically distinct from the Thai. They engage in slash and burn cultivation of subsistence crops and, in some cases, of opium poppies. Government teams from the Border Patrol Police and from the Army are operating programmes to register and educate hill tribes people, to provide elementary medical services in remote areas, to foster improvement and diversification of agricultural production, and to construct highland feeder roads in appropriate localities.

b. Forestry and Catchment Protection: The Government is considering the development of the highland zone on a catchment by catchment basis, issuing lease hold or title to those who intensify their agricultural activities in a manner not prejudicial to soil or water resources. The land thus released from shifting cultivation would then be reforested.

c. Crop Diversification: The Government is considering proposals to reinforce and expand this work. Proposals to grow highland produce and to set up a Highland Agriculture Centre are under review.

d. Livestock Production: The Government is initiating a programme of research and development aimed at increasing the productivity of the savanna lands through pasture development. A cattle programme will also be promoted.

7. Growth Centre in the Northern Region

Development of at least one " Growth Centre " in the North will be promoted during the Third Plan period as the first stepping stone towards eventual build up of a "Sub-regional" heriarchy of urban centres interposed between the changwats and the metropolitan area of the Nation.

Three adjacent provinces have been selected as a "Growth Area" or "Growth Axis" expected to radiate its economic, social, cultural, technical influences far beyond its provincial borders. The three provinces are Chiang Mai, Lampang and Lamphun.

Summary of the Northeast Development Plan (1972-1976):

1. Objectives:

The overall objective of the Third Plan for Northeast Thailand is to develop a programme to enable the region to participate in the economic and social development of the country during the Third Plan period, and to establish a firm base for further accelerated expansion.

This objective is to be implemented by establishing development budgets based on the potential resources of the region, the demand for its products, and the results of previous plans which appear to have neglected the general social welfare of the farmer. The Third Plan stresses human resource development as a prerequisite for economic growth. Programmes for increasing industry in the region, particularly processing of agricultural products resulting from crop diversification, with an export market orientation, are also an objective.

Implementation of the new proposals is intended to achieve the objective of reducing the economy's reliance upon subsistence production of rice. This should correct the imbalances which have emerged, and economic growth, particularly of the productive sectors, should improve without the high level of public construction that took place during the Second Plan.

Another objective is to improve standards of health and education in the Northeast to levels comparable with other regions. Equity consideration form the basis for recommending higher Government allocation to these important sectors. Improvements in community facilities also is an objective as these play a fundamental role in making the development effort meaningful in the rural areas.

2. **Basic Findings: Economic and Social Condition of the Northeast:** Crop production has been of primary importance to the region's growth. It is critically dependent on such upredictables as rainfall in the growing season, and markets for its crops. As a result, annual rates of growth in the Northeast have been very irregular. It is clear, however, that during the 1968-1970 period the average growth of the region's economy has decreased compared to 1960-1967.

During the course of the Third Plan period it is forecasted that the contribution of non-agricultural related production to gross regional product will overtake the contribution of agricultural related production.

These increased growth rates cannot be achieved, unless measures are taken to:

a. Conserve land in the Northeast which is limited in extent. Land scarcity is potentially a serious problem;

b. Bring the level of education, public health and social services closer to the national average level.

Although neither of these measures will result in rapid increases in output, they are essential for the social and economic stability of the region after 1976.

Consideration also was given to raising the region's growth rate through policies to encourage out-migration. However, this seems unnecessary, because the proposed programmes should develop sufficient job opportunities to employ satisfactorily present and projected levels of manpower. However, the problem of continued underemployment is recognized and more local level activity through education services and community development may be desirable.

The annual average population increase in the Northeast is projected to be 2.9 per cent. This increase will require large investments in social welfare facilities such as schools, hospitals and other community welfare programmes. In addition there is a need to upgrade present levels of knowledge and health in order to make the farmer more amenable to increasing and diversifying his output.

Presently, although universal education through grade 7 is mandatory, only 75-80 per cent of eligible age children in the Northeast go as far as grade 4. In the area of health, the region has only one doctor per 50,000 inhabitants compared to a national ratio of 1 : 9,000. However, one of the more favourable aspects for development in the region is the high level of transport and power facilities that presently exist. Expansion and maintenance of these facilities will provide a basis for future growth.

3. Development Strategy for the Northeast Region:

a. Agriculture Development: For the major sector of crop production an increased rate of growth is possible despite the need to keep rice production down to avoid unnecessary surpluses. Estimated targets for the production of all individual crops, based on demand and production potential, can possibly be achieved in a number of different ways; for example, by increasing irrigation, use of new land, use of fertilizer, agricultural credit, research and extension, or some combination of these. The plan calls for a mixed crop development programme as a practical way of achieving diversification in the Northeast. If implemented, crop production in the region should grow by 3.6 per cent per year, despite reduction in annual rice production to 2.8 per cent.

b. Industry, Mining and Commerce Development: It is recognized that industry will develop only if stimulated privately and by the Government, to expand in and into the Northeast. Five businesses have been given promotional privileges in the Northeast; of these only the Northeast Jute Mill Company is significant. The remainder have a total capital of only Bht. 2 million.

Since very little of the processing of agricultural products, even if produced in the region, is located in the Northeast, the first step will be to improve this situation. Livestock, sugar cane, tobacco, cotton, and kenaf are products which presently are transported out of the region for processing and it is proposed in the Third Plan to change this and eventually to establish a more equitable share of raw material processing in the region.

It would be to the whole country's advantage, as well as to specific regions, if there is some decentralization of industry away from the Bangkok, Thon Buri and Samut Prakan areas.

c. Transportation and Communications Development: The transport system of the Northeast is no longer a significant constraint to the development of the region, although there is still need to build certain specific first and second class highway. Feeder roads to connect communities which are now isolated from the main highway network should also receive particular attention, but because of the wide variety of possible route choices, construction should be on a priority basis in which security considerations influence priority.

Maintenance has become a factor for serious consideration since these expenditures have not in the past kept pace with increases in kilometerage.

d. Power Development: The Northeast has two large rivers besides the Mekong, which can consequently contribute significantly to the power development programme.

The total electric power demand in the Northeast is now 10 per cent of the national total, but because of the low base and an increase in urbanization and industry, the projected growth rate is higher than the national growth rate. The increased power demand in the Northeast can only be met by an expanded distribution system.

e. Community Facilities and Public Welfare Development: The emergence of a society from a simple, long established, subsistence rice economy to a more advanced and diversified one is inevitably accompanied by strains such as social unrest, political instability and security threats to the region. The Government has long recognized this fact and many programmes have been developed in the past which demonstrate concern for the people at the grass roots level.

Serious municipal water problems exist in Udon and Korat, and to a lesser extent in Khon Kaen, and Chaiyaphum. The need for an assured supply of drinking water in Northeast villages also is emphasized by the unpredictable nature of rainfall and consequent periods of drought.

The Community Development programme in the Northeast is now well established and has stimulated the economic and physical improvement of small towns and villages.

Manufacturing, trade and services will continue to grow faster than the agricultural sector so urban population should increase at a rate of 8 or 9 per cent per year. This growth can lead to serious urban problems. For balanced social growth, an urban environment is needed which is conducive not only to industrial location, but which also makes cities and towns generally pleasant places to live, and attractive to professional staff, especially in the medical and educational fields.

f. Public Health Development: The health situation in the Northeast, though it has improved because of the services which have already been introduced, is unsatisfactory as shown by data on diseases mortality rate and the number and distribution of health services facilities, and manpower. To ameliorate this situation it is recommended that 50 first class, 690 second class and 500 midwife health stations be constructed during the Third Plan period. It is also recommended that the number of hospital beds be increased by about 3,500. Expansion of health facilities in line with these recommendations would require about 70 additional doctors and 360 more nurses in the Northeast by 1976.

Because the health centre programme has the greatest potential impact on the people of the Northeast, priority to its extension should be given over other programmes.

g. Education Development: Education standards in the Northeast fall below those of the nation as a whole. About 75-80 per cent of eligible children are enrolled in the lower elementary schools, but attendance is irregular and about 25 per cent of those enrolled fail to gain promotion to the next grade each year. At Prathom 5 level only 3.8 pupils per 1,000 population were enrolled compared with 7.7 in other changwats (except Bangkok). Emphasis in the Third Plan therefore has been put on increasing the percentage of students enrolled in grades 5-7 and decreasing the drop out rate by increasing the number of teachers and school facilities.

In addition to the above a number of special programmes were considered:

(1) Texbook distribution;
(2) School rehabilitation;
(3) Teacher's housing;
(4) Educational T.V.;
(5) Library expansion;
(6) Cooperative community training schools;
(7) School transport feasibility study.

4. Recommendations

a. General: The overall recommendation for the Northeast Third Development Plan is for the Government to promote crop diversification and agro-business investment through programmes which demonstrate the economic advantages of moving away from a rice oriented, subsistance economy. Such programmes as accelerated research efforts, improved extension services, greater availability of credit, more efficient utilization of existing irrigation facilities and promotion incentives for relocating processing industries nearer to the source of raw materials are the keystone of this programme. Also, it is recommended that the implementation of such programmes should be concentrated around development poles, particularly the Khon Kaen region.

b. Growth Centre in the Northeast: Khon Kaen-Kalasin is an obvious growth centre and should receive many of the proposed projects for health, education, community development, transportation, and agriculture. For example, in agriculture the Lam Pao, Huay Sithon, Nong Wai and Mancha Khiri pioneer projects are programmes designed to show farmers in the vicinity how to increase production through more modern farming techniques. In addition, expansion of the university and development of secondary and vocational schools will be concentrated at this growth pole. Also, although less definite, there is a plan to concentrate industries that can be attracted to the Northeast in this area.

c. Development Budget Expenditures: The detailed planned growth rates and value added targets for all setors of the economy, including many crops, individual industries, trade and services are estimated to increase at an annual rate of 6.8 per cent during the Third Plan period. To achieve this growth will require regular development budget, foreign loans, foreign aid, state enterprise expenditure, and special development budgets, e.g. Northeast Regional Development Committee's Budget, Accelerated Rural Development Budget and Mobile Development Unit Budget, etc.

CHAPTER 7

POPULATION MANPOWER AND EMPLOYMENT

The objective of the Third Plan is to improve the standard of living and incomes of the people. To be successful, policies designed to achieve this objective must be pursued without interruption over a long period of time. At present there are serious obstacles to continued economic and social development of the country including, inter alia, an unfavourable balance of payments. Targets — and measures to reach them — have, therefore, been established to accelerate agricultural and industrial production, particularly in industries that utilize agricultural products, and to improve Thailand's capacity to produce goods that can compete successfully in international markets.

In addition to effective planning and adequate capital, the success of such efforts hinges on the size and competence of manpower resources, particularly in the scientific, technical and skilled categories. It is the Government's policy, therefore, to accelerate manpower development and utilization by integrating overall economic development with a National Plan for Educational Development. The purpose is to correct prevailing manpower problems, while at the same time preparing the work force to effectively develop the country.

Extensive studies relating to the prevention and cure of manpower imbalances have been carried out in preparation for the Third Plan. They include problems of unemployment, underemployment, manpower shortages, inefficient utilization and allocation, and low productive capacity, all of which adversely affect the incomes of a majority of Thai workers. Problems of recruiting and retaining workers in the Government service were also examined.

The preparation of a person for an effective economic role is a lengthy process which encompasses his training from early youth until he enters the working world. Some children progress through various levels of education, from pre-primary levels through university. A less fortunate child may not have the same opportunity. For him vocational training is essential if he is to make the most effective contribution to production in either urban or rural areas. Thus manpower planning, educational planning and vocational training plans must all be mutually consistent.

Population planning is also an integral part of manpower planning. It is now the firm policy of the Royal Thai Government to support voluntary family planning as a means of containing the growth of population to a rate which is commensurate with the employment potential of the country and which will allow the Government to develop adequate education, health and other services. The objective is to bring the annual population growth rate down from its present level of 3.0 per cent to approximately 2.5 per cent by the end of the Plan period. Economic and social development plans during the Plan period are based on the attainment of this population growth target.

Manpower Policy and Objectives

During the Plan period the Government will pursue the following manpower policies and courses of action:

Placing high priority on reducing the present high rate of population growth by mobilizing public and private resources behind a voluntary family planning programme. The success of this programme is a pre-condition to continued development of the nation.

Generating enough gainful employment to cope with potentially serious manpower problems, urban unemployment in particular. Efforts will be made be reduce the present level of unemployment in urban areas during the Plan period. Strong efforts to combat underemployment and the problems stemming from rural-urban migration will be continued by means of the following actions:

> The Government as an employer will try to attain the production targets of various development projects through labour-intensive techniques. Such techniques will be pursued to a point beyond which the quality of work and timing of projects would be affected. The introduction of more labour intensive techniques is possible in the construction of irrigation dams, ditches, canals and tanks, land development, highway and road maintenance, etc. The adoption of such a strategy will contribute significantly to the creation of gainful employment during the Plan period.
>
> Agricultural employment will be promoted through the further intensification of modern practices in irrigated and rain-fed agriculture. The strategy is to promote the use of labour, as opposed to machinery, both within and outside irrigated areas. Moreover, activities that can supplement agricultural employment, such as small and medium-scale agro-based industries and cottage industries, will be promoted in rural areas, and will be encouraged to use as much labour as possible. Such a strategy will at the same time generate more employment, reduce underemployment, and reduce the scale of migration from rural areas to the cities.
>
> Coupled with these strategies, measures will be taken to speed the growth of non-farm employment. Success will depend not only on increasing the productive capacity of industries associated with agricultural development but also on creating incentives and a generally favourable climate for private investors to produce more goods for export and for import substitution-and thus create more employment opportunities. Concurrently other means, preferably labour-intensive, of generating non-agricultural employment will be further intensified. These include projects to provide housing, public utilities and services, transportation and communications, and similar activities.

Promotion of an efficient production system, the output of which can compete successfully in international markets. While sufficient capital is necessary for such a system, it is also essential to consider carefully the number, quality and utilization of manpower with scarce skills. It is for the purpose of improving the efficiency of production that studies designed to devise suitable ways of dealing with manpower problems were given priority in preparing for the Third Plan. Preparatory work included the assessment of demand and supply in key occupations, particularly those in scientific and technical categories; the need to improve education and training for children and youth, both within and outside the school system; the upgrading of the skills of persons already in the work force; and similar manpower development aspects so essential to the economic and social development of the country.

Improving the utilization of manpower in the civil service. The experience of the First and Second Plans has shown that there are serious manpower problems within the Government which need immediate corrective action. These problems relate to the allocation of manpower between urban and remote rural areas; certain administrative practices which result in inefficient manpower utilization; methods and procedures used in recruiting Government personnel; and other administrative problems. These have been major obstacles to the successful implementation of many development projects in the past, and every effort will be made to overcome them during the Third Plan period. Particular attention will be focussed on incentives to attract and retain the skills essential to the implementation of the Plan, and on an improved system of allocating manpower to areas where they are most needed.

Developing an equitable labour policy. It is clear industry, commerce and the service sectors have continued to expand, and will become increasingly significant in the Thai economic structure in the future. It is also evident that despite the critical importance attached to the development of scarce technical and professional skills, a major part of the Thai labour force will be unskilled workers. The Third Plan therefore, provides for a specific Labour Policy designed to afford proper protection and justice for these workers. The Labour Policy will be supported by adequate legislation and programmes in the areas of employment services, labour relations, labour protection, wages, workmen's compensation, and the like. These kinds of measures are required to meet the minimum present day needs. They will, however, provide a much needed foundation on which to build a comprehensive system of labour legislation for the future.

Mampower Problems

The following are the major manpower problems, which will be urgently considered and dealt with by appropriate action.

High population growth rate. Large families require a substantial and rapidly increasing proportion of the nation's resources for education, health and other forms of public services. Previous research has also shown that for every 100 Thais of working age the number of dependants 15 years or under is as much as 89. This represents a heavy burden and limits the improvement of living standards for many large families.

Children leaving school prematurely. There are three basic causes. The first and most important is that there are not yet enough schools. Secondly, because the incomes of most Thai families are still relatively low, keeping children at school imposes a considerable financial strain. Children, therefore, leave school to help in basic household chores. Thirdly, many Thais living in rural areas have as yet an inadequate appreciation of the ultimate value of education beyond the level of basic literacy. The number of rural children progressing beyond the fourth grade is consequently very small.

Unemployment. Unemployment is largely an urban problem. It arises from 1) migration from rural areas, 2) producing graduates whose training does not meet present day needs and 3) inadequate information on trends in occupational requirements. These, and a number of similar reasons, contribute to a waste of educational resources, a loss of income, and other potential economic, social or political problems.

Underemployment. Underemployment is a pernicious problem everywhere, but in rural areas represents the greatest overall loss of potential income. The most obvious causes are the highly seasonal nature of activities in traditional agriculture, and in some cases land holdings too small to fully occupy the working members of a family. Underemployment also occurs, of course, when persons are employed in jobs requiring less skill than the occupations for which they were trained.

Rural to urban area migration. Generally arises when rural dwellers have too much idle time, particularly during the dry season. In such circumstances the level of income is frequently too low to prevent heavy indebtedness, and many feel that they may do better in the city. But if not enough urban jobs are available, the influx of rural people accentuates urban unemployment, housing shortage, social unrest and crime.

Manpower shortage. During the Third Plan it is anticipated that shortages in certain critical occupations will continue. These include doctors, nurses, teachers of certificate levels and other technical and scientific manpower. There are of course unavoidable constraints which must be faced in efforts to produce more people with these skills, namely a shortage of qualified teachers and funds for classrooms, equipment and textbooks. But shortages will persist and unemployment will develop even when the output of educational and training institutions is large, if the qualifications of graduates do not match the requirements of the labour market. The output of engineering faculties is an interesting example. During the past ten years intensive efforts have been made to increase the number of engineering graduates. It is expected that although the shortage of engineers will continue during the first part of the Third Plan period, a surplus may develop in the course of later years. This type of situation calls for continuous and careful assessment.

Quality of manpower does not meet labour market standards. It is an apparent paradox that unemployment persists alongside substantial unsatisfied labour requirements. A case in point is the professional, technical and administrative personnel which educational institutions train in substantial numbers each year. New graduates are now experiencing difficulty in finding jobs, not because these categories are not needed, but because employers want the experience, the business "know how" which graduates do not have.

Manpower Allocation. Another apparent paradox is a surplus of certain skills in urban areas and a chronic shortage of the same skills in rural areas. This is a serious manpower problem for which a workable solution must be found. The basic cause is the fact that rural areas, particularly remote rural areas, lack the amenities of city life, and a proper set of alternative incentives has yet to be developed to attract such needed personnel as doctors, nurses, midwives, qualified teachers and agriculturists, veterinarians and skilled craftsmen to serve in rural areas.

Low income per worker. The basic factors are the predominance of industries with relatively low labour productivity, and the rapid growth of population and labour force. A related problem is the inefficient use of manpower as, for example, an agricultural extension officer who is overloaded with administrative duties, or a teacher who is assigned to a provincial centre instead of teaching in the rural school to which he is formally attached.

The Government's manpower problems stem from many of the factors already mentioned. Improvements are needed to modernize administrative methods and procedures, including those used in hiring and incremental remuneration. Other problems requiring corrective action are duplication of work, lack of coordination and inadequate supervision and direction by superior officers, all of which result in poor work performance and low efficiency.

Corrective Measures to deal with Manpower Problems

The following measures are being taken to deal with the above mentioned manpower problems:

Population and Family Planning. The present population growth rate in Thailand is very high and, in consequence, the proportion of children in the overall population structure is substantial. This situation naturally imposes a heavy burden on individual families and on the Government in attempting to provide adequate public services. The Government has, therefore, proclaimed a National Population Policy to support voluntary family planning. Such action will be useful not only from the standpoint of reducing the dependency burden of individual families but will also enhance the prospect of accelerating economic and social development of the country. As the population growth rate declines, the Government can afford to reduce certain expenditures and will be able to use the funds so saved more productively by, for example, improving the educational system for an eventual rise in the quality of future human resources.

The objective of the Government's population policy is to reduce through voluntary family planning the present annual growth rate of about 3.0 per cent to 2.5 per cent by the end of the Third Plan. It is anticipated that a total of some 2.5 million family planning acceptors(1) can be serviced during the Plan period, by mobilizing private and public financial, manpower and physical resources. To accomplish this task, it is essential that an integrated approach be taken by all existing family planning, maternal and child welfare centres and other health services.

Different projections of future population in Thailand can be made by varying the underlying assumptions. Table 7—1 below is a projection based on a moderate reduction in the birth rate. On this assumption the population of Thailand will be approximately 44 million in 1976, representing an increase of 6.2 million during the 5years of the Plan. Should the goal of 2.5 per cent annual population growth rate be achieved by the end of the Plan period, however, the total population in 1976 would be almost a million less than the figure quoted above.

TABLE 7 - 1

Population Projection, 1971 — 1976

(thousand)

Age — Group	October 1971		October 1976		Increase	
	Male	Female	Male	Female	Male	Female
0 — 4	3,343	3,211	3,786	3,644	443	423
5 — 9	2,786	2,694	3,248	3,138	462	444
10 — 14	2,343	2,268	2,745	2,666	402	398
15 — 19	2,048	1,982	2,316	2,239	268	257
20 — 24	1,784	1,689	2,021	1,965	237	276
25 — 29	1,382	1,353	1,757	1,658	375	305
30 — 34	1,048	1,082	1,356	1,332	308	250
35 — 39	911	941	1,025	1,061	114	120
40 — 44	795	828	882	925	87	97
45 — 49	669	698	754	804	85	106
50 — 54	523	550	635	675	112	125
55 — 59	411	446	485	532	74	86
60 — over	973	1,073	1,116	1,263	143	190
Total	19,016	18,825	22,126	21,902	3,110	3,077

Labour Force and Employment. Before considering in detail the employment potential of the Third Plan it is necessary to examine briefly the future size of the available labour force. Its probable growth in the coming five years is summarized in the following paragraphs.

The following labour force projections are based on a careful analysis of past and expected future trends in labour force participation rates. It appears that participation rates at the younger ages have fallen slightly for both males and females, and this trend can be expected to continue when allowance is made for the planned increase in the proportions of young people in school during the plan period.

(1) *Acceptors are couples who begin practicing contraception as a result of the Family Planning Programme.*

Thailand's labour force is expected to increase during the Third Plan period by 2.6 million workers, from 17.0 million to 19.6 million (see Table 7—2). Approximately 60 per cent of the increase willbe males and 40 per cent females. The average annual rate of increase will be 2.9 per cent and it is that this rapid growth will continue well beyond 1976. During the 19 year period 1971-1990, the labour force will increase by 12.6 million, or by almost three quarters. Thereafter, growth of the labour force will slow down if the planned decline of the birth rate during the Third Plan period materializes.

During the Plan period, roughly 3.5 million persons will enter the labour force, and about 0.9 million persons will leave it due to death, retirement and other related factors. The net labour force increase during the Plan period will therefore be 2.6 million persons (see Table 7—2).

TABLE 7-2

Thailand: Labour Force Projections for the Five-Year Plan and Perspective Plan Periods

(thousand)

	Labour Force 1971	Labour Force 1976	Increase 1971-76	Percentage Increase 1971-76	Labour Force* 1990	Percentage Increase 1970-90
Males	9,352	10,923	1,571	3.1	16,598	87.4
Females	7,652	8,722	1,070	2.7	13,016	80.2
Total	17,004	19,645	2,641	2.9	29,614	84.2

* Based on population goal in the Third Plan.

Employment Potential during the Plan period.

Taking into consideration the growth rates anticipated for different economic sectors and the proposed employment strategies, it is projected that by 1976 the Plan will have generated employment for almost 19.5 million persons. This means that just over 2½ million more jobs will be created during the Plan period. Of the total employment in 1976 the agricultural sector's share will be about 14.6 million persons, or about 75 per cent (compared to about 78 per cent now). Despite a decreasing share in the overall total, in absolute numbers an additional 1.5 million persons are expected to be employed in agriculture. Other sectors are expected to provide employment for about 4.9 million persons in 1976, or about 25 per cent of the employment total. This is equivalent to an increase of about one million jobs, and a rise from 22.6 to 24.9 in the proportion of non-agricultural employment to total employment.

TABLE 7-3

Employment Potential of the Third Plan
by
Industrial Sector 1971-1976

Industrial Sector	Employment Potential					
	1971		1976			
	No. of persons (000)	per cent	No. of persons (000)	per cent	No. of persons (000)	per cent
1. Agriculture, Forestry Hunting, and Fisheries	13,076	77.4	14,606	75.1	1,530	59.7
2. Mining and Quarrying	51	0.3	66	0.3	15	0.6
3. Manufacturing	715	4.2	785	4.0	70	2.7
4. Construction, Repair and Demolition	150	0.9	191	1.0	41	1.6
5. Electricity and Water Supply	42	0.2	66	0.3	24	1.0
6. Commerce	1,278	7.6	1,688	8.7	410	16.0
7. Communication, Storage and Transportation	317	1.9	404	2.1	87	3.4
8. Services	1,273	7.5	1,658	8.5	385	15.0
Total	16,902	100.0	19,464	100.0	2,562	100.0

Despite the substantial growth that is anticipated in the industrial sector, the total increase in employment seems likely to fall short of the requirements needed to keep pace with the growing labour force. A comparison of the foregoing tables shows that, on the basis of prevailing patterns of labour utilization, 80,000 more persons might be unemployed at the end of the Plan period than at present. The implication is that even with a 7 per cent annual growth in output, the goal of holding unemployment at a low level can only be achieved by the promotion of labour intensive programmes, where they are economically feasible, and careful attention to ensure that training and education are consistent with the manpower requirements of the economy. Employment strategy, not only in Government agencies and enterprises but also in other sectors, has therefore been given a high priority in the Third Plan. If these strategies are successful unemployment may be smaller than anticipated, and problems of under-employment and migration less serious.

On the other hand, unemployment might even be higher than the foregoing projection if many of the problems mentioned earlier in this chapter are not adequately dealt with. These include the efficient allocation of manpower and the phenomenon of the "educated unemployed". Currently there are substantial manpower requirements which are not being met because the qualifications of work seekers do not satisfy the needs of employers. At the same time the numbers who cannot find jobs are substantial. They include graduates of vocational schools other than the I B R D project, Loan for the Improvement of Vocational Education. These kinds of qualitative problems compound the seriousness of the unemployment problem and do nothing to ease manpower shortages. Their solution requires close collaboration among many interested agencies. The Department of Labour, with its responsibility for employment services, must provide clear information on unemployment and shortages of manpower, in terms of occupation and educational requirement. These data must be constantly fed to agencies responsible for education and training. These holding such responsibility include the Ministries of Education and Industry and the National Institute for Skill Promotion. With such an information system continual adjustments can be made in curricula and number of courses. If planning in education and training can be geared in this way to labour market requirements, both educational waste and the scale of manpower problems will be reduced.

Manpower Demand and Supply

Many of the critical manpower shortages of the past few years will be carried forward into the Third Plan period. Some occupational shortages will ease or disappear, and a few are expected to intensify. Overall, an additional 2.6 million persons are expected to be employed, distributed as follows among the broad occupational groups.

TABLE 7 - 4
Additional Manpower Requirements
by
Major Occupational Group
1971 — 1976

Occupational Group	No. of persons ('000)	per cent
1. Professional Technical & Related Workers	78	3.0
2. Administrative, Executive & Managerial Workers	30	1.2
3. Clerical Workers	69	2.7
4. Sales Workers	450	17.4
5. Farmers, Miners & Related Workers	1,560	60.3
6. Workers in Transport and Communication Occupations	89	3.4
7. Craftsmen, Production Process Workers & Labourers	213	8.2
8. Service Workers	97	3.8
Total	2,586	100.0

The demand for manpower in the administrative and management category is roughly 30,000 persons or only about 1.2 per cent of the requirement total. This is small in absolute terms, but in terms of its importance for development this occupational category is one of the most critical. This is because the type of people needed are highly qualified and experienced. These prerequisites cannot be obtained from new graduates from the universities, who have had little or no practical working experience. For this reason, there is a good deal of pirating now going on in the Thai labour market. Moreover, it is not uncommon for many foreign firms to bring their own personnel from abroad,(1) thus causing Thailand to lose substantial amounts of foreign exchange annually. While Thai colleges and universities annually produce large graduating classes in the fields of business administration, commerce, and economics, many of these graduates are experiencing difficulty in finding jobs or are forced to take jobs in which they cannot fully utilize their training. There are many reasons, and a lack of suitable experience is one.

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(1) see also pp. 110 - 111

One solution to this problem calls for cooperation from the foreign firms in providing jobs for the qualified Thais to work as assistants to the foreign personnel. After accumulating sufficient working experience and ability, these assistants would progressively be entrusted with more responsible jobs, at least to the level of director. Another possibility is to provide in-service training programmes with appropriate courses for different levels of responsibility, and, of course, provision for qualified instructors.

The sub-sections below examine the demand-supply situation and the problems in several important occupational categories. These include doctors and nurses, scientists and related manpower, engineers, agriculturists, technicians, craftmen, and different levels in the teaching profession.

Doctors. Renewed efforts are being made to ease the long standing shortage of qualified doctors. The target is to graduate 2,000 more doctors during the Plan period. When the present number of doctors, graduating during the Plan and attrition are taken into account, by 1976 there will be altogether about 6,200 doctors in Thailand, making the ratio of doctors per capita 1:7,000. This is very little improvement over the corresponding ratio of 1:8,000 at the end of the Second Plan period. It is, therefore, necessary to expand the training of doctors and to strive for a) a further improvement in the quality of doctors; b) a more balanced distribution between urban and rural areas; and c) more effective means to discourage doctors from going into permanent practice abroad.

Nurses and Midwives. There have been and will continue to be shortages in this manpower category in the future. The basic problems may be attributed to two factors, namely:

a. educational and training constraints, notably a lack of qualified instructors, inadequate budget appropriations, and inadequate equipment and facilities; and

b. pay scales and other administrative factors that have been inadequate and ineffective inducements. Many nurses and midwives leave the country to seek more attractive employment opportunities abroad and stay there on a permanent basis, thus compounding the shortage problems.

Total requirements for nurses and midwives in the Third Plan-after attrition is taken into account-total about 14,000. When compared with an estimated 7,600 expected to graduate during the Plan period, a shortage of some 6,400 is anticipated. The situation may be worse if the present outflow of nurses and midwives from the country intensifies.

Scientists, Assistant Scientists and Related Manpower. Growth of the industrial sector and the increasing development of scientific and technical education, when added to existing shortages, will bring the demand for manpower in science to about 23,000 persons. This estimate of total requirements is made up in the following way:

TABLE 7-5

Demand for Scientists and Scientific Assistants by Levels of Education

Level of Education	Number of persons
University	8,500
Grade Fifteen	800
Grade Thirteen	13,700
Total	23,000

The estimated demand includes university instructors with degrees in science, totalling, 2,400. Further details on the requirements for scientific manpower are contained in a later section.

On the supply side, the universities are expected to produce about 3,400 graduates in science. The supply of those receiving 15 years of education or more (but without degree) is expected to total roughly 450 persons.(1)

During the Plan period, therefore, shortages in the supply of scientists and their assistants are expected both in terms of quantity and quality. Some uncertainty attaches to the size of the shortage, because of the slower growth of overall output in the Third Plan, and particularly the reduced rate of industrial development. In any case, priority for scientific manpower development should be placed on the qualitative aspects.

Engineers. During the Second Plan period, Thailand faced a servere shortage of engineers mainly becaus of the boom in construction and industrial activities generally. Unfilled vacancies were large, and in many instances unqualified staff were hired when experienced engineers could not be found. Strong efforts were made to expand the number of graduates from engineering faculties. As a result, there may be about 4,700 graduating engineers(2) during the Third Plan, whereas the total demand for this period is anticipated to total about 2,500 including a demand for about 300 engineering instructors. Such a reversal in demand-supply situation may be attributable to a slowing down of certain sectors within the economy plus the fact that the Government's investment in basic infra-structure is not expected to increase in the Third Plan. Many of the projects continued from the Second Plan will need no new engineering manpower.

Agricultural Manpower. The demand-supply situation in agricultural research and extension during the Plan period is presented below:

TABLE 7-6

Demand for Agricultural Manpower during the Plan by Levels of Education

Levels of Education	Number of persons
University	3,000
Grade Fifteen	5,700
Grade Thirteen	1,600

On the supply side, during the Third Plan the universities expect to produce about 5,300 graduates. Available supply from grade 15 and grade 13 is expected to be roughly 3,700 and 3,200 respectively.

These estimates suggest that while there were shortages of agricultural manpower in the previous plans, there may be surplus in the Third Plan period at two levels, i.e., the university and grade 13. For grade 15 a shortfall of about 2,000 is anticipated. This situation reflects the decision of Government agencies to overcome the promotion problems of fourth grade officers by giving preference in hiring to grade 15 graduates. If one assumes substitutability of a given work between grade 15 and grade 13 personnel, the supply of agricultural personnel during the Third Plan will be in excess of demand by 1900.

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(1) Those with thirteen years of schooling do not take specific courses in science. Moreover, the demand for assistants in laboratory and related scientific work is generally concentrated on the upper level of secondary school - vocational stream graduates. The demand - supply situation will be examined more fully in a later section on skilled craftsmen.

(2) Including about 1,300 graduates from King Mongkut's Institute of Technology.

It should be recognized that these simple numerical comparisons are merely suggestive, and that in the real world the balance between supply and demand is influenced by many complex factors that cannot be quantified easily. For one thing, graduates may choose to pursue activities unrelated to agriculture rather than accept employment in remote areas. For another, previous efforts to accelerate this type of training may have diluted the quality of instruction, necessitating supplementary training to upgrade the qualifications of graduates. These two examples are perhaps sufficient to show that precision cannot be expected in estimates of this kind.

The size of the imbalances makes it fairly clear, however, that there are serious manpower allocation problems, and other evidence indicates that graduates need better qualifications. Improvement in education and training programmes should therefore command a high priority. The IRBD LIVE(1) project should be expanded from 10 agricultural schools to cover all of the 24 agricultural schools in the country. No new schools should be established until the standards of the existing ones are improved in terms of curricula, facilities, qualified teachers and school farms. At the university level, improvement in qualitative aspects, particularly in respect to methods of teaching and practical training should be stressed.

Teachers and Instructors. The overall demand for qualified teachers and instructors for the Third Plan is approximately 101,400 persons. The total includes demand for 1) 4,500 science and technology instructors and 2) 10,500 university instructors in the humanities, mainly in the Faculty of Education. When compared with the corresponding supply total of about 20,000 from this faculty, it seems clear that a surplus of supply over demand in respect of graduates from the Educational Faculty is imminent. It would appear that the number of graduates from this Faculty should be scaled down, efforts should be made to improve the quality of instruction and, at the same time, incentives should be developed to induce more instructors to serve in the rural areas. The demand for technical teachers with fifteen and thirteen years of education in the technical institutions is 5,000 and 500 respectively during the Plan period. It appears that the teachers which will be needed most are those with lower and higher certificates of Education. The demand total is about 80,900 whereas the supply is expected to be 77,000. It should be noted that the latter figure includes employed teachers who obtain a leave of absence to attend advanced courses, and teachers who take evening courses. Thus the indicated supply may be overstated, and a shortage of at least 3,000 teachers may be expected.

This is a serious problem for which urgent corrective action is needed. Other critical problems concern qualitative improvement and the allocation of qualified teachers into rural areas were critical shortages persist. Appropriate action to deal with these problems consists of improving the teacher training curricula, teaching methods and means to evaluate results. In addition, as a short-term measure, the shortage of middle-level teachers can be relieved by providing short course teacher training for local youths who finish grade 12 or above in the shortage areas. Under this arrangement, it will be necessary to provide inducements through salary and other benefits at least equal to those receiving the lower certificate of education. Other means to deal with the shortage of middle-level teachers include such incentives as special allowances, higher pay for an equivalent job in rural areas and provision of suitable housing accomodation for teachers at the certificate level.

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(1) Loan for Improvement of Vocational Education.

Technicians. Available evidence indicates that the demand for grade fifteen technicians in the fields of trade and industry will be 7,600. An additional 5,000 will be required for teaching and 2,600 for technical work. The corresponding supply figure is estimated to be 15,300 which is slightly higher than the demand figure. But many graduates in this field become self-employed, and experience has also shown that some move to nearby countries, such as Laos. Others will return to school for further training. At least for the Third Plan period, therefore, a surplus in this manpower category is not expected to constitute a major problem.

But as in other fields it will be necessary to revise the training curriculum so that it conforms more closely to labour market requirements. Practical aspects must receive more emphasis and irrelevant courses must be eliminated. Students should have access to practical business problems by bringing in lecturers from the business world. It should also be emphasized that no new institutes should be established until the standards of existing institutions at this level are improved.

Vocational School Graduates. Graduates from the vocational stream have encountered increasing difficulty in finding jobs. In large part the difficulty stems from the fact that they are inadequately prepared for the working world. Qualified instructors cannot be hired in sufficient numbers to staff more than 120 vocational schools in upper secondary education. These schools also suffer from outmoded teaching methods, low budgets and course contents that do not place enough emphasis on practical application. Vocational schools that have benefitted from the IRBD LIVE project are better equipped, and although these schools are experiencing some "start-up" problems their graduates are generally acceptable to employers and find jobs with little difficulty. The LIVE project, however, now accounts for only 14 of 120 vocational schools in the country. The major problem to be solved in the Third Plan is to bring the quality of instruction, equipment and accommodation in all vocational schools up to the standard of those in the LIVE project.

The demand for graduates of LIVE project schools is estimated to be 17,100 during the five years of the plan, whereas not much more than half that number will graduate. The fact that 20,600 youngsters graduating from other vocational schools will have far less chance of finding suitable work means that urgent action needs to be taken in this field.

Scientific and Technical Manpower. It is generally recognized that advances in science and technology go hand in hand with accelerated industrial development. This fact is particularly relevant in Thailand, which has placed a high priority on developing a capability to produce goods that can compete successfully in foreign markets. The key to developing that capacity is scientific and technical manpower and the lack of this resource critically affected the achievement of goals in the Second Development Plan. The magnitude of this problem is illustrated by data from Government agencies, which reported a total shortage of 1,104 scientific and technical personnel during the period 1966-71. Some agencies were forced to improvise by hiring personnel (281 in total) without the qualifications required for the position, and 823 unfilled vacancies have been carried over into the Third Plan period.

This information is derived from a survey conducted jointly by NEDB and the National Research Council in September, 1970. The survey covered Government agencies, including state enterprises and municipalities, and private industrial establishment with twenty or more employees in the Bangkok-Thon Buri area. The total number of public agencies and private establishment was about 1,000.

Of a total of 2,746 alien personnel working in the country, 591 (or about 22 per cent) are classified as scientific and technical. There are 355 aliens working with the Government, of which 341 (about 96 per cent) are scientific, technical, or related personnel. The situation in the private sector is different; of 2,360 aliens, only 235 (about 10 per cent) are scientific and technical personnel.

TABLE 7 - 7

Demand for and Supply of Manpower by Selected Occupations during Third Plan

(number of persans)

Selected Occupation	Demand	Supply	Difference	
			Surplus	Shortage
1. Administrator and Manager	30,000			30,000
2. Physician	2,700	2,000	—	700
3. Nurse and Midwife	14,000	7,600	—	6,400
4. Scientist$^{(1)}$	8,500	3,400	—	5,100
5. Engineer	2,500	4,700	2,200	(shortage in the early stages)
6. Agriculturist and Agronomist$^{(1)}$	10,300	12,200	1,900	—
— University Level	3,000	5,300	2,300	—
— Grade 15	5,700	3,700	—	2,000
— Grade 13	1,600	3,200	1,600	—
7. Professor and Teacher	101,400			
— Scientific and Technological Field (Univ. Level)	4,500	(Included in items 4 to 6 above)		
— Other Academic Field (Univ. Level)	10,500	20,000$^{(2)}$	9,500	—
— Cert. of Higher Teacher Training	80,900	77,000	—	At least 3,000 No. 9
— Cert. of Junior Teacher Training	5,500	(Included in No. 8 and No. 9)		
8. Technician (Grade 15)	7,600	15,300	7,700	—
9. Craftsmen with Vocational Cert. (Grade 13 — Trade and Industry Field)	17,100	8,900 20,600 $^{(3)}$	20,000	8,200

(1) These are the respondents' estimates of the numbers required to implement development plans. Because of budget constraints and lower GDP growth rate the actual numbers hired could be less.

(2) Includes only University graduates with a degree in Education.

(3) 8,900 graduates from LIVE project schools; 20,600 graduates from other vocational schools.

The evidence indicates clearly that there is little shortage of scientific and technical manpower in the private sector (most aliens in private industry perform administrative and managerial function). This is basically due to the ability of the private sector to provide the incentives to attract the needed scientific and technical personnel. The figure of 10 per cent alien scientific and technical personnel in the private sector is probably due to a lack of experience of the local manpower resources and a tendency among foreign-owned firms to entrust confidential information on technological processes only to personnel from the home office.

This matter demands careful attention. The purpose of investment promotion is not only to obtain much needed capital but also to acquire technological knowhow. But if Thai technicians do not have access to knowledge about production techniques, it is not possible to master them. To allow this situation to continue is, not only contrary to the objectives of investment promotion, but also economically wasteful. High priority must be given to the implementation of measures designed to encourage alien personnel to import technical knowhow to the Thai people within a reasonable time period.

The Government is of course fully aware of the shortage of scientific and technical personnel in Thailand. A major effort was, therefore, undertaken to produce more graduates in this field in the Second Plan, and that effort will be continued in the Third Plan. It is anticipated that by the end of the Third Plan period there will be a sufficient number of engineering and agricultural personnel, and an improvement in the quality of their training. A shortage of scientists is expected to continue and vigorous efforts are needed to ease this situation.

Government Manpower. Government functions have expanded and grown much more complex in recent years, but its administrative system has failed to keep in step. Lack of coordination and duplication of effort has had the inevitable consequence of budgetary waste and delay in achieving intended targets. As one illustration, agricultural research is currently carried out by many agencies without proper coordination. This results in a good deal of ineffective research. Moreover, the present inadequate salary, welfare and incentive structure has hindered the recruitment and retention of needed specialists particularly in the rural areas. There are also difficulties in opportunities for promotion. These problems should be given serious consideration at the earliest moment. Whatever work is already begun, such as the Position Classification System, should be brought to completion early in the Plan period. Concurrently, the existing in-service training of Government personnel, now administered by many agencies, should be brought under one master plan in order to save limited resources and improve the productive efficiency of Government manpower.

TABLE 7 - 8

Scientific and Technical Personnel, by Nationality, Sector and Field of Study

1970

Item	Total Employment		Scientific and Technical Personnel								Per cent of Scientific and Technical Personnel to Total			
			Total		Natural Science		Engineering		Agriculture					
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No	Per cent	Total	Natural Science	Engineering	Agriculture
Total	437,762	100.0	11,915	100.0	5,537	100.0	3,982	100.0	2 396	100.0	2.7	1.3	0.9	0.5
Thai	435,016	99.4	11,324	95.0	5,205	94.0	3,756	94.3	2,368	98.6	2.6	1.2	0.9	0.5
Foreign	2,746	0.6	591	5.0	332	6.0	226	5.7	33	1.4	21.5	12.1	8.2	1.2
Government Sector	214,530	100.0	8,263	100.0	4,266	100.0	1,834	100.0	2,163	100.0	3.8	2.0	0.8	1.0
Thai	214,175	99.8	7,922	95.9	3,988	93.5	1,793	97.8	2,141	99.0	3.7	1.9	0.8	1.0
Foreign	355	0.2	341	4.1	278	6.5	41	2.2	22	1.0	96.0	78.3	11.5	6.2
Public Enterprises	90,314	100.0	1,466	100.0	279	100.0	1,049	100.0	138	100.0	1.7	0.3	1.2	0.2
Thai	90,291	100.0	1,458	99.5	279	100.0	1,041	99.2	138	100.0	1.7	0.3	1.2	0.2
Foreign	23	—	8	0.5	—	—	8	0.8	—	—	34.8	—	34.8	—
Municipality	6,353	100.0	117	100.0	16	100.0	58	100.0	43	100.0	1.8	0.2	0.9	0.7
Thai	6,345	99.9	110	94.0	16	100.0	58	100.0	36	83.7	1.7	0.2	0.9	0.6
Foreign	8	0.1	7	6.0	—	—	—	—	7	16.3	87.5	—	—	87.5
Private Sector	126,565	100.0	2,069	100.0	976	100.0	1,041	100.0	52	100.0	1.6	0.8	0.8	—
Thai	124,205	98.1	1,834	88.6	922	94.5	864	83.0	48	92.3	1.5	0.8	0.7	—
Foreign	2,360	1.9	235	11.4	54	5.5	177	17.0	4	7.7	10.0	2.3	7.5	0.2

Source : Report of Scientific and Technical Personnel by National Economic Development Board and National Research Council : September 1970.

The present Plan calls for improved coordination, particularly in the utilization of Government manpower. This integrated approach should be vigorously pursued regardless of whether the work is national, regional or local in scope or whether it is in agriculture, health or any other sector. An improvement of administration through modern management techniques will serve three essential purposes. It will solve administrative problems in programme and project planning. It will produce better coordination among Government agencies at all levels. And it will make coordination with the private sector more effective.

Rural Manpower and Employment

Summary of Rural Manpower Problems(1) The bulk of Thailand's population, about 85 per cent or more than 30 million people, lives in the rural areas. The crucial manpower needs of this dominant sector, and the general situation in rural Thailand may be summarized as follows:

Traditional agriculture, crafts, trade and institutions prevail in rural areas. But the employment potential and the capacity to produce income in both traditional agriculture and traditional crafts and trade are limited. They can be greatly increased, however, by modernizing with labour-intensive methods.

The modernization of the rural economy requires skilled manpower on different levels and in many occupations, including development-oriented administrators, rural entrepreneurs, agricultural professionals and technicians (researchers and extension workers) and, of course, the millions of farmers. Education, skill promotion, vocational training, agricultural and industrial extension are, along with appropriate capital inputs, the key factors for rural development.

The rural employment situation is characterized by seasonal underemployment and low productivity. During the Third Five Year Plan about 2.1 million members of farm families will enter the labour force. The employment outlook for them is not bright. Only a very limited number will be able to find a job outside agriculture, while a large number will have difficulties in finding productive employment in agriculture due to the small size of the family farm, and limited availability of suitable farm land for settlement.

Development objectives for rural manpower and employment. The major objectives of the Plan in rural areas are:

1) to generate sufficient agricultural and non-agricultural employment to take care of the increase in labour force and at the same time to raise the income level.
2) to effectively deal with the problems of seasonal unemployment
3) to utilize the rural labour force to the fullest extent possible in order to prevent excessive rural—urban migration and
4) to improve rural institutions and infra - structure.

An integrated approach toward agricultural manpower and employment promotion within the agricultural sector. Thailand's per capita income increased from about 2,100 baht in 1960 to about 3,300 baht in 1970. These figures conceal large differences in per capita incomes among regions, between rural and urban areas, and within individual urban and rural areas.

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(1) For a more comprehensive coverage of rural manpower problems and programme recommendations. See Rural Manpower, Rural Institutions and Rural Employment, Manpower Planning Division, NEDB, 1970.

GDP per capita of the farm population in 1970 is estimated to be about 1,300 baht, as compared to 9,100 baht for the non-farm population. A recent NEDB rural manpower study disclosed that among farm households in four different villages in changwat Khon Kaen the income per household member varied from 440 baht to 3,010 baht per year. The average income per household member was 1,250 baht. Almost 25 per cent of the family income an average was derived from off-farm activities, ranging from silk production to construction work or trade. In two villages in Changwat Ayutthaya the average per capita income was 2,060 baht, ranging from 580 baht to 4,330 baht; on average, 16 per cent of the total income was earned from off-farm acitivities. The average income in 30 households in three different villages in Chiang Mai province was found to be 1,370 baht per capita, ranging from 560 baht to 3,670 baht; 31 per cent of the household income, on average, was derived from off-farm activities. (1)

The figures, although not considered to be representative for the regions, indicate clearly the order of income disparities within agriculture. It is expected that these discrepancies will increase rather than decrease in the near future, unless vigorously counteracted by effective programmes.

Modernization of agriculture is needed to increase agricultural production. Given the resource endowment of Thailand, modernization does not mean the introduction of large scale, highly mechanized farming. Rather, it means promoting the family type of farming, the introduction of modern, labour-intensive farming in both irrigated and non-irrigated areas and improved cropping patterns and rotations. Government programmes must also stimulate the introduction of labour-using inputs like fertilizers and improved seeds rather than labour saving machines. An effective agricultural extension service to assist all the farmers must be built up.

Agricultural manpower—farmers, technicians and many professionals—are not fully prepared for the introduction of modern diversified agriculture. Improved agricultural research and expanded extension efforts will be integrated to tackle the country's major economic problem: replacing traditional agriculture by modern and highly productive farming methods.

In spite of a large agricultural labour force, Thai agriculture is not at all labour intensive. Labour input is comparatively low in terms of man-hours per rai. In 1960 only 18 persons were employed per 100 rai in Thailand as compared to 27 in Taiwan and 40 in Japan. Employment for a growing farm labour force and reduction of seasonal underemployment can be achieved by substantially increasing the input of labour per unit of arable land. Modernization of agriculture and intensifying land use patterns will doubtless call for more mechanical power, but the process of farm mechanization should progress in such a way that labour requirements are increased rather than decreased.

It should be clear that modern agriculture cannot be achieved by merely changing one or two production factors. A new seed variety might completely fail if it is planted, fertilized and groomed in the traditional manner. Success frequently results when serveral changes in technology are introduced simultaneously. This practice is known as a "package programme" ; improved seeds, recommended amounts and types of fertilizer, appropriate cultivational methods. insect and pest control, irrigation (in many cases). the development of credit, transport and marketing facilities — all or most of these must be applied as a package in order to achieve maximum results. To assist Thai farmers to improve their farming practices, package programmes will be worked out at the research stations and disseminated by the agricultural extension service. Separate "packages" will be worked out for irrigated and non-irrigated areas.

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(1) NEDB - Rural Manpower Utilization Study. Preliminary figures only. Final figures are being tabulated. See also the NEDB Report : Rural Manpower, Rural Institutions and Rural Employment.

Underemployment in agriculture is still an unsolved problem. It means that much of the agricultural labour force is underutilized during the slack seasons of the agricultural year. This situation is usually found in traditional monocropping systems. Sample surveys on rural employment have shown that in the Northern and Northeastern Region at least 20 to 30 per cent of the working time available during the year is not utilized. A detailed study in one village in the Notheast revealed that on average 40 per cent of the available working time is not utilized. During the dry season more than half of the available working time is spent without gainful employment. Low labour and land productivity and low agricultural incomes are the consequences. The cost of seasonal underemployment is high, and (in contrast to unused physical resources) unused labour potential is lost for national development.

The ill effects of agricultural underemployment are only partly offset by non-agricultural activities during the dry season. The principal sources of non-agricultural employment and income are cottage industries, work in forestry or construction etc. Moving temporarily to regional centres, to Bangkok or to other places with a short-term labour demand is for younger persons another means of supplementing incomes.

The problem of farm underemployment cannot be solved in the context of traditional subsistence farming, and it is too large a problem to be eliminated entirely through off season non-agricultural employment. It therefore seems most appropriate to first exploit all possibilities of employment promotion and increased labour demand within the agricultural sector itself. This should be done by introducing modern, labour-intensive farming systems in irrigated and in dry-land areas. Modern land use patterns should be worked out at the agricultural research stations and then introduced to the farmers by the agricultural extension service. In dry-land areas where year-round agricultural production is not feasible, cottage industries and other means of creating non - agricultural employment should be concentrated.

It is expected that about 2.6 per cent of the cultivated area can be brought under controlled all-year irrigation by 1976. On these lands two or more crops can be grown per year and lack of family labour during the peak seasons might well become a bottleneck in a rapid introduction of advanced methods. The eradication of underemployment can be realized in these areas.

Six per cent of the cultivated areas will be under wet season supplementary irrigation by 1976. Introducing fast maturing varieties and new crops should enable the farmers of these areas to introduce some double cropping and at least reduce underemployment. In the Southern Region a better distribution of rainfall over the year and the existence of different perennial crops provides a good basis for introducing farming systems with more equally distributed labour requirements through the year.

In many valleys of the Upper North double cropping was introduced long ago. A further intensification of land-use is possible even there. In the non-irrigable areas of the Northeast a land-use system has been developed in which the farmers combine paddy production and upland crops. Although the farming systems can be much improved, it will not be possible to reduce underemployment substantially. For all areas which are not covered by major irrigation projects, investigations into the availability of shallow ground water should be stepped up because small scale lift irrigation schemes could bring relief in many areas.

It can be stated that the introduction of double cropping will prove to be the best rural employment promotion programme with regard to reducing seasonal underemployment. It does not create many new employment opportunities in agriculture, but it will help to reduce seasonal underemployment and it will have important secondary employment effects. This is because increased production will add more than proportionately to the demand for transport, marketing and other services.

Rural employment promotion in non-agricultural sectors. Although employment creation within the agricultural sector will, for many years to come, play a decisive role in overall efforts to find gainful employment for the fast growing rural labour force, it is also important to provide more off-farm jobs in rural areas. In addition to the expansion and improvement of traditional rural crafts and trades, rural industrialization, especially agro-based industries, will be promoted. In the long run economic development in rural areas will depend upon both progress in agriculture and in non-agricultural sectors. To initiate a more balanced growth within the country, a better environment must be created in rural areas and more functions and responsibilities should be delegated to local administrative authorities.

To provide agriculture with all the services needed for accelerated development the changwat, towns and amphoe seats should gradually be developed as regional and sub-regional centres. Economic and social infra-structure, i.e. communication, power, schools, hospitals, will be brought up to standards which make these towns acceptable for Government officials and the personnel of private firms, and which make the establishment of small or medium scale industries feasible. Vocational training facilities for non-agricultural skills and crafts should be improved according to developing local and regional needs.

The capacity of rural areas to provide agricultural income and employment is limited. If excessive migration to Bangkok is to be avoided, provision should be made in time for locating new manufacturing industries up-country, beginning at the regional centres. Providing promotional privileges for investment up-country, granting tax exemptions and working out a scheme for reducing transport rates from and to remote areas could well be a beginning for rapid rural industrialization. The promotion of agro-based industries will receive high priority during the Third Five Year Plan. One means might to be revise regulations which prevent the processing of local raw materials up-country, e.g. timber processing or slaughtering.

The cash income from cottage industry products is at present not large and cottage industries accounted for only 1.7 per cent of Thailand's exports in 1969, but their importance to Thailand is far out of proportion to their monetary value. A programme has been established to foster cottage industries through training, organization, identification of markets and ensuring supplies of raw materials to provide more employment and more income. The plans are to identify those cottage industries which are capable of growth, and which have real or potential future markets. Those already identified are blacksmithing, pottery, wood working and silk production.

Provided that new production techniques are introduced and the cooperatives perform their procurement and marketing function successfully, it is envisaged that in some cases the transition from cottage industries to small scale industries can be achieved. A special programme has been started to establish two pilot projects to train hilltribe people in gem cutting. Plans for setting up a branch of the Small Industries Services Institute in the Northern Region should be expedited,

Introducing more labour intensive construction methods in public construction programmes in rural areas should become a general guideline for all departments and agencies concerned. This applies especially to the construction of feeder roads, small dams etc. Public works should be planned in a way that provides for intensive labour input during the dry season. Special attention should be given to working out labour-intensive schemes for implementing villages level irrigation systems and land consolidation projects. In both cases the plans would have to be prepared by technicians of the RID, but much of the work which was done in the pilot projects by heavy machinery should be turned over to the farmers, even at the expense of slower implementation. If land consolidation is to be implemented on a large scale, provision should be made for farmers participation in the work and for contributing labour instead of money. In dry land areas similar schemes should be worked out for land development projects. Labour intensive maintenance programmes should become another feature of public works in rural areas. The repair of gravel roads and feeder roads, or grass cutting on highway-shoulders by hand instead of machines are examples.

Large areas in rural Thailand are and will remain under forests. But if the forests are to remain a productive asset of the country, it will become necessary to introduce forest management and to organize replanting to ensure a continuously replanished forest. Much of the forest work can be done during the dry season, making use of the agricultural manpower, provided that no excessive mechanization takes place. The possibilities of combining wet season agriculture and dry season work in the forests should be carefully studied and a pilot scheme should be implemented by the Royal Forestry Department.

Professional and technical agricultural manpower. The basic institutions necessary for introducting modern agriculture on scientific lines — agricultural universities (or faculties), agricultural research centres and experimental stations, agricultural extension service and agricultural vocational schools-exist in Thailand. They are found in separate departments and they work largely in isolation. Not all of them have adopted modern concepts. The flow of information is slow and duplication of effort is widespread. In short, the problem in Thailand's rural agricultural development appears to lie not in more institutions but better coordination and the improvement of existing institutions to ensure their most effective utilization. In order to coordinate existing research efforts and to overcome the development obstacles caused by compartmentalization it is planned to set up a national agricultural research council for the preparation of a modern research programme. Research objective will aim at the establishment of family type, labour intensive commercialized farms. Research into the economics of farming, farm management and labour utilization must be added to almost all applied agricultural research projects.

The key factor for a better utilization of existing institutions is manpower development. There are shortcomings with regard to quantity and quality for both professional and technical personnel which need to be overcome if agricultural development is to reach the momentum required. To make agricultural careers attractive, it will be necessary to revise traditional staffing patterns in the light of modern requirements.

Agricultural extension is the link between applied agricultural research and the farmers. It is of paramount importance in Thailand because few farmers have had formal vocational training. Furthermore, the modernization of agriculture requires the introduction of new agricultural methods and techniques which have to be explained and demonstrated to the farmers in their own environment. The new Department of Agricultural Extension is not yet in a position to fulfill these functions. It suffers from a lack of extension agents and from lack of adequately trained personnel. It is, therefore, planned to continue the building of this department and to provide the positions needed to ultimately reach a ratio of one full-time extension agent to 1,000 farm families instead of the present ratio of 1:8,000.(1) Action will also be taken to legalize the "extension regions" and thus build up a network of subject-matter specialists to backstop the amphoe extension workers. In order to improve the efficiency of the agricultural extension agents there should also be a separation of administration and agricultural extension.

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(1) The ratio of Amphoe agricultural officers is generally given as 1:4,000. This ratio, however, does not take into consideration the fact that these officers spend only 50 per cent of their time as agricultural extension agents.

At the same time every effort will be made to improve the quality and knowledge of the extension agents, to improve their mobility and to ensure that they are free for fulltime extension work with the farmers.

For upgrading the quality of agricultural extension workers it is planned to set up : a) a programme for in-service training for extension agents and later, pre-service training for agricultural graduates at the Northeast Agricultural Research Centre at Tha Pra; b) a programme for the training of a special task force of "adjustment" agents for irrigated agriculture at Huey Sithon Experimental Station for Irrigated Agriculture; and c) as a temporary measure, a training scheme for assistant extension agents (animateurs).

These programmes will be pilot projects which can be repeated in other regions of the country if they prove to be sucessful.

The agricultural vocational schools and institutes. Ten out of 24 agricultural vocational schools including the agricultural junior colleges, were covered by the LIVE(2) programme which proved to be an important step toward the improvement of the agricultural vocational school system. During the Third Five Year Plan period, efforts should be concentrated on completing LIVE programme phase 1, including school farm development and starting phase II, the upgrading of 14 non-project schools. Building new schools should be postponed until the existing 24 schools are adequately staffed, properly equipped and the school farms are fully developed.

Although it must be the long-term aim to develop a complete rural educational system, this cannot be fully completed for some years. In the meantime, it is necessary to establish training schemes to reach the maximum possible number of rural youth. Provision will be made so that at least some future farmers will receive a vocational or pre-vocational training. The pilot project on pre-vocational training will be evaluated and perhaps be repeated in a way best suited to Thailand's rural conditions. The rural youth leadership training programme which was started at Lop Buri by the National Youth Promotion Committee will be expanded to the South, and other informal approaches to provide guidance and informal vocational training, e.g. 4H Clubs, will be undertaken. Another possibility is to provide short-course training to young farmers, at agricultural vacational schools during vacation time (March through May). The use of the surplus buildings of LIVE project schools for training courses for farmers and rural youth will also be explored.

Preparing Manpower for Development of the Country

The process of manpower planning not only necessitates consideration regarding manpower problems and obstacles with a view to finding proper solution, but also requires proper provision for preparing effective manpower and appropriate means to prevent the recurrence of similar problems in the future. Manpower preparation not only requires the development of health and nutrition of a child from the pre-natal stage to the time he enters the labour force to perform work useful for himself and his country, but includes also the education and training of children and youth both within and outside the school system.

A National Plan for Educational Development. Recognizing that a full range of educational opportunities is the right of every Thai child, the Government has, during the past decade, greatly accelerated the development of educational facilities. It is now apparent that this rapid buildup has created inconsistencies

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(2) Loan for Improvement of Vocational Education.

between the output of educational institutions and the manpower needs of the nation, the results of which have been reviewed in earlier sections. To correct this situation the Third Plan provides for the integration of educational and manpower planning. The following summarizes the guidelines that have been developed for the various levels of education.

Primary Education. The full benefits of technology can only be realized by a society that has the education and training to take advantage of new techniques. In Thailand, the bulk of the people, particularly those earning their living in agriculture, lacks the schooling to make them functionally literate. It has become increasingly urgent to raise the standards of education of the farm population, if for no other reason than to permit them to read about and understand modern farming techniques, a programme which the Government will heavily support during the Third Plan. One means of improving the education of farm children is by extending as rapidly as possible regulations to raise compulsory school attendance from Prathom 4 to Prathom 7.

Secondary Education. One consequence of the high rate of population growth during the past two decades has been a very large increase in the number of teenage boys and girls. A complex and expensive educational system has been built up to prepare these youths for an effective role in society. It is essential, whether they go on to higher education or directly into the work force, that graduates of the secondary school system are trained for employment in occupations that will benefit them, their families, and their country.

University Education. Because of the high cost of providing university education and the limited funds available to the country at this time, the development of university facilities should be very carefully planned. And the objective of such planning must be to provide the type of manpower required to speed the country's development, and maximize the utilization of its human resources. Educational plans must take full account of the present and prospective manpower problems that are reviewed earlier in this chapter.

Development of Out-of-school youth. The Government responsibility for the development of youth as the future manpower resource of the country covers a wide field, including such areas as health, nutrition and cultural and moral development. The development plan for out-of-school youth is focussed on ways to provide training, particularly vocational training, for those who cannot further their schooling and are too young to work.

Such a plan is necessary now because of the time it will take to effectively raise the age below which school attendance is compulsory. In 1970, only 747 of 4,904 Tambons in Thailand had upper primary schools, and at the present time not more than a quarter of the country's youth receive more than Prathom 4 education.

To provide suitable vocational training for these youngsters is an urgent matter because there is no such provision in the existing vocational training system. A National Vocational Training Plan, to be developed early in the Third Plan, will make provision for out-of-school youth. A National Youth Promotion Committee has already been appointed, and it will be the responsibility of this committee, the Office of the National Economic Development Board and the implementing agencies to integrate all out-of-school youth training programmes into the overall vocational training system. The initial stage will be pilot projects in each region designed to make the most effective use of facilities, manpower and funds.

CHAPTER 8

AGRICULTURE & IRRIGATION

Expansion of cultivated crop areas and a reduction in forest cover is gradually changing the pattern of land use in Thailand. The 1965 Land Classification Survey of the Department of Agriculture showed 76 million rai of agricultural land, or about 24 per cent of the whole country; 181 million rai of forest area (56%); 1.7 million rai of lakes and marshes (1%); and 63 million rai of unclassified land (20%).

Thailand remains an agricultural country despite its increasing industrialization. Agricultural products (crops, livestock, fishery and forestry) constitute the largest component of national income, though their share has been declining steadily (from 34.8 per cent in 1965 to 31.9 per cent in 1969 and an estimated 29.5 per cent in 1971).

This fall in the portion of national income attributable to agriculture has occurred despite a steady though less than expected growth in output (4.2 per cent per year) during the Second Plan. Over a somewhat longer period the gains in production have been substantial. Between 1963 and 1969 crop output rose by 37.2 per cent, forestry output by 59.1 per cent, livestock by 16.3 per cent and fishery by 177.1 per cent.

Thailand's foreign trade depends heavily on primary agricultural products, exports of which in 1969 were valued at 10,027.8 million baht, or 68.1 per cent of the total. The drop in the world price of commodities, notably rice and rubber, was a major factor in Thailand's adverse balance of payments in 1969, the first in many years.

The Current Situation in Agriculture

Because of its importance to the Thai economy development of the agricultural sector is the principal strategy of the Third Plan. Expanded output and an improvement in the quality of agricultural products is essential both to boost sales abroad and to permit an expansion in production based on domestic raw materials. In doing so, however, a number of difficult rural problems must be faced: an increasing shortage of skilled manpower; inadequate education, health and other services: an incomplete network of transportation and marketing systems and agricultural credit institutions; frequent fluctuations in farm prices; cost of fertilizers too high for economic use; a wide income disparity between the farm owner and the landless tenant; and underutilization of labour, in part because of a growing scarcity of free land suitable for cultivation.

There are also problems of administrative coordination that need to be tackled, particularly in Government services. Services to agriculture are provided by many departments and agencies but because they are understaffed and uncoordinated full benefits are not realized. Government service also suffers from the fact that regulations on, and standards of, quality, conservation, sanitation and inspection of foods are inadequate or lacking entirely.

Objectives and Measures

Objectives

The main policy objectives in agriculture are as follows :

1. To raise the level of income, standard of living and economic status of farmers through accelerated farm production, more efficient distribution, and social development.

2. To increase exports of agricultural products through increased efficiency in production and better marketing techniques.

3. To reduce underemployment and underutilization of farm labour through a programme of modernized, labour - intensive techniques.

4. To strengthen the economic and social position of farmers by promoting farmer associations and farmer institutions.

Measures

These policy objectives will be pursued by many varied means. The main guidelines are as follows :

1. Agricultural development is assigned the highest priority in the Third Plan. Farming is the main source of income for the Thai people, and the degree of prosperity in agriculture strongly influences the rate of growth in other sectors. In order to raise incomes and the standard of living of the farming community, it will be necessary to accelerate agricultural production and improve the quality of products, for both domestic and export markets.

2. Social development in rural areas will be undertaken concurrently. Measures will be implemented to improve the quality of life in rural areas, with emphasis on the promotion of farm organizations, the protection of tenure and the development of better Government services. The object of these measures is to equalize social conditions in rural and urban areas of the country.

3. Agricultural production zones will be established. Agricultural development cannot be planned effectively through the mere extrapolation of trends. It is a complex process which must take into account not only the quality and distribution of resources, but also climate, market demand, seed and fertilizer inputs, and a host of similar factors. The Third Plan will therefore classify certain regions as production areas taking all of these factors into consideration. Following appropriate testing within these areas various crops and livestock, or combinations of these, will be recommended to farmers.

4. The solution of marketing problems will be emphasized in the Third Plan. At present there is a lack of balance between improvements in production techniques and improvements in the marketing process. To date, selling efforts have been mainly directed to the consumer market, with little or no attention to the need to service the growing market among intermediate food processing firms. This phase of marketing so far lacks a Government agency responsible for buying primary products from farmers and selling them in bulk to secondary producers. Another necessary means of increasing the farmer's proportion of final sales returns is a more coordinated set of production, distribution and farm credit services. This process can be most effectively accomplished through the relevant farming associations and cooperatives.

5. Diversification and improvement of agricultural production will be accelerated. The prospective demand for rice in world markets is weaker than it has been in the past, and the capability to adjust to this change must be accelerated. Such products as maize, soy beans, mulberry and silk, coconut, cotton and tobacco have a good potential for export, and their production will be promoted through research on improved seeds and growing techniques, and extension services to farmers. Livestock production can be substantially increased and will be encouraged in suitable areas by means of breeding and marketing programmes and measures to eradicate disease. Forestry production will be encouraged by joint ventures of private enterprises and Government. Long-term leases will be granted, consistent with improved forest management and conservation. Fisheries development will be directed to the expansion of deep - sea and fresh - water fishing and the development of the seacoast for shrimp farming.

6. Farm production in irrigated areas will be accelerated. During the first two Plans success was achieved in the construction of many large irrigation projects, but progress in irrigated agriculture was far less satisfactory. In part, this stemmed from inadequately coordinated efforts of the agencies responsible for experimentation in irrigated farming methods, and extension services. But the core of irrigation development lies in the promotion of farmer's cooperatives, water - user associations and similar groups, and emphasis by these groups on completing the final stages of irrigation projects and drainage systmes, improving the efficiency of existing systems and their use in agriculture.

7. Because of their importance to the rural community farmer associations will be vigorously promoted. Many agricultural products, fruit and rubber for example, can be improved more efficiently in large scale operations (as, for example, in replacing old trees with high yielding varieties). In a rural society of small scale family farms, similar efficiency can only be achieved through large scale membership in farmers associations. At present only about 10 per cent of Thai farmers are members of voluntary agricultural organizations of one kind or another. In the long run interest of Thai agriculture, measures will be initiated to substantially raise membership in such organizations.

8. Promoting the growth of processing plants using domestic raw materials will assist agricultural development by enlarging the market. Measures will be taken to establish incentives for investment in agricultural processing industries. Equally important, effective linkages will be set up between organizations of primary producers and processors, and between these organizations and the relevant Government agencies.

9. It is recognized that farm credit for such inputs as fertilizers, machinery, and land are also essential to an expanded agricultural output. The cooperation of the private sector will be sought to increase the availability of credit. The Government will step up its technical services and assistance, together with extension services.

10. It is in the long - term public interest to halt large - scale, unplanned exploitation of forest, soil and fishery resources. Violation of forestry laws and regulations is still widespread, despite the enforcement efforts of recent years. Conservation and restoration of natural resources must be the basis of development in the Third Plan.

11. Coordination among Government agencies and a more efficient administration not only in Government but also in some large organizations in the private sector is of utmost importance to a faster rate of agricultural development.

Production Targets

Many of the limitations mentioned in the foregoing pages must be taken into account in setting up realistic production targets for the Third Plan period. As one example, the potential for increasing agricultural productivity in Thailand is high, **provided** soil fertility is conserved (and in some areas restored) and **provided** traditional farming techniques are modernized. Moreover, the possibility of expanding production by bringing new areas under cultivation is limited by the availability of suitable land.

As already mentioned, marketing represents another obstacle to higher production. In foreign markets particularly, the possibility of finding an outlet for increased farm output will depend on the extent to which other countries succeed in becoming self - sufficient in the products which Thailand can export. Mention has also been made of the need to expand Government extension services and improve training and coordination. Production targets for the Third Plan necessarily assumed that budget allocations are large enough to support these and similar development programmes.

In constant value terms, Gross Domestic Product originating in agriculture increased during the Second Plan period at an average rate of 4.2 per cent annually. The target rate during the Third Plan is set at 5 per cent per year. This means that the value of goods and services originating in agriculture (in 1962 prices) will increase from 37,287 million baht in 1971 to 47,760 million baht in 1976. What this overall target means for the production of specific products is shown in Tables 8 - 1 and 8 - 2.

Commodity Development Projects

The major crops - rice, maize, kenaf, rubber and cassava - accounted for two thirds of the total value of crop production in 1968. In the Third Plan period most of these commodities will face less favourable markets than in the past. Rice, the leading export product, faces particular difficulties. In 1967, 1.48 million tons of rice were exported at a price of 3,144 baht per ton and a total value of 4,653 million baht. In 1969, 1.02 million tons were exported at an average price of 2,878 baht per ton, for a total value of 2,945 baht. But in 1970 the price of rice had dropped sharply to 2,390 baht per ton, and while the total amount exported rose slightly to 1.06 million tons, its value fell to 2,515 million baht.

TABLE 8 - 1
Projection of Major Products

	Unit	1960	1966	1967	1976
Agriculture					
1. **Crops**					
Rice	Thousand ton	9,508	13,500	13,369	14,467
Rubber	Thousand ton	171	218	309	397
Coconuts	Million nut	340	350	443	574
Sugar cane	Thousand ton	5,382	3,829	7,000	8,100
Corn	,,	544	1,122	2,100	3,500
Sorghum	,,	—	144	128	171
Groundnut	,,	152	220	210	400
Mung beans	,,	60	132	280	480
Castor beans	,,	43	42	44	55
Soy beans	,,	25	38	100	300
Tapioca	,,	1,222	1,892	4,593	6,260
Tobacco	,,	74	81	102	148
Cotton	,,	46	89	90	200
Kenaf, Jute and Ramie	,,	203	674	390	450
Kapok	,,	407	273	410	500
Sesame	,,	19	20	26	48
Vegetable and Others	,,	2,631	3,985	4,701	5,503
2. **Livestock**					
Cattle	Thousand head	502	590	674	820
Buffaloes	,,	316	347	364	422
Swine	,,	3,585	4,115	4,711	5,870
3. **Fisheries**					
Shrimp	Thousand ton	10	32	60	112
Marine fish	,,	153	500	1,030	1,860
Fresh water fish	,,	73	85	96	108
4. **Forestry**					
Teak	Thousand m^3	153	151	370	450
Yang wood	,,	321	535	545	600
Others	,,	800	1,356	1,950	2,810

TABLE 8—2

Average Growth Rates of Major Products

(Percentages)

	1961—1966	Estimate 1967—1971	Target 1972—1976
Agriculture			
1. Crops			
Rice	6.6	0.4	1.6
Rubber	4.2	7.0	5.1
Coconuts	0.6	5.3	5.1
Sugar cane	—3.4	13.4	3.0
Corn	13.0	14.5	9.6
Sorghum	—	10.7	6.0
Groundnuts	9.9	1.3	13.8
Mung beans	21.6	17.4	11.4
Castor beans	3.0	1.3	4.6
Soy beans	14.4	22.8	24.6
Tapioca	10.0	13.8	6.4
Tobacco	3.8	3.5	7.7
Cotton	13.5	3.4	17.3
Kenaf, Jute and Ramie	19.1	0.1	0.5
Kapok	—3.8	8.8	4.0
Sesame	4.4	5·8	13.2
Vegetable and Others	7.2	3.4	3.2
2. Livestock			
Cattle	2.9	2.6	4.0
Buffaloes	1.7	1.0	3.0
Swine	2.4	2.8	4.5
3. Fisheries			
Shrimp	22.1	14.9	13.1
Marine fish	22.4	16.6	11.3
Fresh water fish	2.9	2.6	2.5
4. Forestry			
Teak	6.6	16.2	4.0
Yang wood	9.4	—2.0	2.0
Others	9.5	4.0	6.0

Source : Economic and Social Planning Division NEDB.

To offset the drop in rice exports, six special projects to accelerate production of selected commodities will be undertaken. They are maize, soy bean, mulberry and silk, coconut, shrimp, buffalo and cattle. High priority will also be given to increasing the output of cotton, tobacco and coffee.

As indicated earlier, realistic planning of the projects is a complex matter involving a series of integrated steps. The first is a series of soil and land - use surveys to determine the areas with the right combination of soil and moisture conditions for each commodity, selecting the most appropriate areas and designating them as agricultural promotion zones. Another stage is the promotion, primarily through farmer cooperatives and associations, of seed distribution, the dissemination of new techniques of cultivation, including pest control, the best use of irrigated water, crop rotation etc. Financing the purchase of the required inputs, fertilizers, pesticides and so on, will be assisted by actively encouraging the expansion of farm credit institutions. The final stage of the agricultural promotion projects is the improvement of marketing and pricing systems, and the development and enlargement of the processing of primary farm products. The targets of the six accelerated production projects are as follows :

Maize. — The past decade has seen a phenomenal increase in overseas sales of maize. From 236,000 tons, valued at 250 million baht in 1959, exports rose to 1,372,000 tons valued at 1,857 million baht. Japan has been the leading buyer, but in recent years significant markets have been developed in Taiwan, Singapore and Malaysia.

Recognition of the potential for larger sales, both at home and abroad, is reflected in a growing output, which in 1971 is expected to exceed 2 million tons. Coordinated efforts of the Departments of Agriculture and Agricultural Extension in coming years will aim particularly to increase the yield per rai, which at present averages 320 kg. It is estimated that by means of fertilizers and such new varieties as Praphutabat 5 the average yield can be raised to 400 - 500 kg. per rai.

Target

— Production to be raised from an estimated 2.2 million tons in 1971 to 3.5 million tons in 1976.

Soy beans. — The principal vegetable oil bearing crops, soy beans and groundnuts, are in heavy demand in both domestic and foreign markets. With these commodities, in contrast to other types of oil - bearing crops, a programme of accelerated production is therefore planned. The project, to be formulated jointly by the Departments of Agriculture and Agricultural Extension, will begin with a programme of multiplication of S.J. 1 and S.J. 2 seed varieties in promotional zones.

Target

— The target is to raise the yield of soy bean production from 139 kg./rai currently to 250 kg./rai in 1976. Total output will be raised from 67,000 tons (1969) to 300,000 in 1976.

Mulberry and Silk. — Silk has increasing potential for export. The critical factor is improving the quality of mulberry trees and the quality of silk worms. A programme to accelerate quality mulberry and silk worm production will be undertaken jointly by the Departments of Agriculture and Agricultural Extension.

Target

— Some 600,000 high quality mother silk worms are now being distributed to farmers each year. This number will be more than doubled in 1972, and over the five year period will be increased more than three - fold. The yield of mulberry trees will be increased from 1,600 kg./rai to 2,000 kg./rai.

Coconuts. — Coconuts, once a major export item, have shown no increase in the past ten years. Exports have dropped off and in some years coconuts have actually been imported. The Third Plan calls for accelerated production of coconuts. The programme calls for a new experimental station, a demonstration plot, and an extensive replacement of old trees with higher yielding varieties.

Target

— In 1970 the yield per rai was 400 - 500 units; the target for 1976 is 800 - 1,000 units. The area planted with high - yielding varieties is to expand at the rate of 20,000 rai per year. Because of the long gestation period significant increases in total production are not likely until after the Plan period.

Shrimp. — Shrimps have become an increasingly important item in domestic consumption, and have become a leading export item in recent years. A special programme to accelerate the production of shrimp has been developed by the Departments of Fisheries and Forestry. It involves surveying suitable areas of the coast by the Forestry Department, and setting aside 1 million rai for development. The Fisheries Department will set up a shrimp research and training centre designed to reduce costs and teach better methods of cultivation.

Target

— The target is to increase the catch by not less than 10,000 tons per year, to a total of about 112,000 tons in 1976.

Livestock. — The Government has long felt that the raising of beef cattle, for domestic consumption and export, should be increased. Despite past efforts most of the cattle now raised are draft animals while imports of quality beef have continued. Production problems, including cattle theft, have limited the number of cattle farms. If these problems can be overcome there is a market for domestic consumption alone of at least 2,000 head of quality beef per year. Buffalo find an easy market abroad, but an export quota of 30,000 has had to be set because of the danger of reducing the stock of buffalo below the number necessary to work the farms.

Target

— A programme to accelerate beef cattle production by not less than 50,000 head per year is to be undertaken by the Department of Livestock. Management of this programme is to be carried out at the Surat Thani, Nongkaung Livestock Breeding Station and Ratchaburi Building and Sterilization Unit.

Other Crop Programmes. — In addition to those crops coming under the programmes to accelerate the output of the above mentioned special crops, higher production of other products will continue to be encouraged, in cooperation with the cooperatives concerned. The target for cotton is to increase yield from 150 to 250 kg./rai. Coffee seed multiplication and the promotion of palm oil will be stepped up. Research will continue to improve the quality of rubber trees, smoked sheet rubber and block rubber.

Research

During the Third Plan close attention will be paid to agricultural economic and production research. Agricultural experimental stations have now been established in sufficient numbers across the country. These stations are not doing effective work, however, because of the lack of qualified technical personnel. The Ministry of Agriculture is trying to deal with this particular problem by setting up regional agricultural research centres. During the Plan period such agricultural research centres will be established in the North and South Regions.

Currently there are 20 rice experimental stations, three in the Northern Region, nine in the Central Region, six in the Northeastern Region and three in the Southern Region. The work of these stations is exemplified by the three new hybid varieties of rice which were developed by the Rice Department in 1969 - R.D. 1, R.D.2 and R.D. 3 (R.D.2 is a glutinous rice). These three varieties are all resistant to orange - yellow leaf disease and promise a yield that may be as high as 1,200 kg. per rai.

While the solution to the problem of increasing rice yield appears possible, its disposition in foreign markets becomes more difficult. The present stuation is indicated by the ratio of Thai rice exports to world exports, which has decreased from 24.5 per cent in 1963 - 1965 to 15.8 per cent in 1968. The volume of exports has declined from 1.74 million tons in 1968 to 1.06 million tons in 1970 and export value dropped over the same period from 3,700 million baht to 2,500 million baht.

Measures designed to achieve the research objective - the acceleration and expansion of research in production and marketing are as follows :

1. An agricultural research plan will be drawn up for each Region as a part of the national agricultural development plan. For example, in the Central Region emphasis will be placed on a plan for research on rice, upland crops and diversification crops. In the Northern Region, emphasis will be placed on mixed farming, vegetable plantations and orchards. In the Northeast, research will concentrate on livestock and upland crops such as cotton, tobacco and mulberry trees. In the South, research will be on rubber, palm oil, coconut, etc.

Once these plans have drawn up, the regional agricultural centres will be responsible for implementing them by assigning work to different agricultural experimental stations. At the central headquarters groups of researchers will be set up for different crops covering every aspect of research, e.g. seeds, fertilizers, insecticides, productivity and agricultural economics. One group leader will be responsible for each crop with assistance from all sources including universities and the Applied Scientific Research Corporation. The research must aim at increasing the yield per rai and improving quality, taking into account a) the ability of the farmers to utilize the research results and b) the market demand. Some product examples are high oil content soy bean, long - fiber, disease and pest-resistant cotton, broilers, and bacon - type swine.

2. Apart from the regional research centres there will be specific research centres for certain important crops which have guaranteed markets. Examples are the maize and sorghum research centre, the swine research centre and vegetable oil - bearing crops centre. In this type of research close cooperation between various departments and universities is needed.

As an incentive, sucessful researchers will be provided with research funds, and will be relieved of administrative work.

Agricultural Economic Research Programme. — The important projects are the farm data survey project; farm price project; the study of marketing and the processing of oil seed project. Other important projects are an economic study of ground water use for agriculture; and studies of production economics, agricultural marketing and agricultural development planning.

Area Development Programme. — The important area development projects are those of the Central Plain agricultural centre and the Northeast agricultural centre, and farm development in the Huay Sithon irrigated area.

Agriculture Department

Survey Experimentation and Research Programmes. — Research and experimentation is carried out at 31 agricultural experimental stations, 7 mulberry and silk stations, 1 rubber research centre and 11 rubber stations. There is also a soil and fertilizers research project, the purpose of which is to analyse soil in terms of chemical and physical structure, fertility and microbiology; and a plant plot project, the purpose which is to strengthen plant protection by means of research on insecticides, biological control, virus and nematology.

Rice Department

Rice Variety Tests. — The objects of these tests are to preserve the quality of the best strains of rice, to develop better varieties, and to improve seed structure and nutritional value.

Rice Multiplication and Experimentation. — Twenty stations in various locations are engaged in seed multiplication, experiments of various types, variety tests, fertilizer research, pest control research and farm machinery development.

Farm Equipment Survey. — The purpose of this project is to determine what types of farm equipment are most suitable for specific crops in various parts of the country.

Rice Protection Research. — This project will investigate rice processing and storage problems.

Farm Mechanization Training Centre. — This centre will serve farmers by conducting training courses in the basic elements of agricultural equipment engineering and maintenance.

Agricultural Extension Department

The Agricultural Extension Department, formed in 1969, is responsible for the extension activities formerly carried out by the Rice and Agriculture Departments. Extension activities of the Livestock and Fishery Departments have not been transferred to the new department.

As indicated earlier, the programmes of the new department will emphasize accelerated agricultural promotion. Specific activities are as follows :

1. Establishing agricultural promotion zones for the special commodity crops. Development will be planned in both irrigated and rainfed regions. However, rice promotion zones will be designated only in areas in which irrigation systems are fully established, except in areas of heavy rainfall in the Southern Region. Promotion of double cropping will be intensified in suitable areas.

2. Promotion of accelerated drop diversification.

3. Promotion of increased membership in and greater efficiency of cooperatives and other farmer's associations and institutions.

4. Providing regular training for extension officers at regional centres, and setting up a system of rotating officers from the central headquarters to work with local officers on assigned projects in rural areas.

5. Ensuring full consultation with research programmes in setting up extension activities.

6. To provide essential support for extension activities a training programme for assistant extension officers will be carried out. Candidates for training will be drawn from the most progressive farmers, leaders of 4H clubs and other youths with a middle level educational background. Assistant extension officers should not be regarded as civil servants, but rather as representatives of the farming community.

Fisheries Department

Fisheries research and experimentation is carried out at 19 Fishery Stations, 14 on fresh water, 2 on brackish water and 3 on the coast. Deep-sea fishing in Thailand has been hampered by a lack of suitable fishing craft and knowledge of navigation. Yet Thailand fisheries are among the most progressive in Southeast Asia. They have quickly mastered modern equipment and technology, and have displayed flexibility in adapting to new techniques as they are developed.

Fresh water fishing is a major activity in Thailand and techniques are well developed. In this area the Department is concentrating on fish breeding in natural waters and man - made reservoirs, and the rehabilitation of those public fishing grounds that have deteriorated over the years.

As a result of these efforts, the fish catch in Thailand has increased more than 2 ½ times over the past 6 years, from 577,000 tons in 1964 to 1,595,000 tons in 1970.

During the Third Plan attention will be directed to coastal and deep-sea fisheries, with the objective of increasing production enough to supply the home market and to increase exports. Research, promotion and demonstration activities in fresh water fishing and brackish water culture will be increased, and conservation will be made more effective.

Because of the growing importance of shrimp in export and home markets, the accelerated production project will be strongly supported.

The following are the major development projects of the Fisheries Department :

Fresh Water Fishery Development Project. — Under this project research work on fish breeding will be carried out at 14 fresh water fishery stations. Public fishery grounds will be rehabilitated and fish will be stocked in irrigation tanks, dam reservoirs, lakes and ponds.

Brackish Water Fishery Development. — This project includes the improvement of research facilities in the two existing stations and establishing additional mobile extension units to demonstrate culture techniques to fishermen.

Marine Fishery Development Project. — In the three marine fishery stations research and experimentation work will be strengthened. It will include research and designing of fishing boats and fishing equipment, the objective being to provide fishermen with technical knowledge of deep-sea fishing, navigation and the best use of modern equipment. Surveys of fishing grounds will be conducted in the Gulf of Thailand, the South China Sea, and the Indian Ocean in order to complete the mapping of fishing areas available to Thai fishermen. Fishery information services and communication facilities will be improved and expanded. Other projects include the development of improved fish storage and processing methods, and a survey of the economic situation of fishermen.

Coastal Agriculture Development Project. — This is the main project to accelerate shrimp production. It involves the development of approximately one million rai of coastal area, together with a research centre to study methods of reducing production costs A shrimp culture training programme will be set up in Chanthaburi Province.

Livestock Department

The land and climate in many parts of Thailand are suitable for raising cattle, swine and poultry, and in the recent past an increasing number of commercial livestock farms have been established. Dairy farming has also increased in recent years, and appears likely to expand in the future. Swine and poultry raising is still another growing farming activity; rapid progress has been made in mastering modern methods of feeding, breeding and disease control.

The Third Plan will stress the acceleration of livestock production, and to a lesser degree, swine and poultry production. Measures will be taken to:

1. Expand the distribution of high quality animals by cross breeding imported beef and dairy breeds with domestic varieties in much the same way that swine and poultry have already been improved. The Thai buffalo needs no improvement, but its size and quality must be maintained.

2. Set up a disease free zone in the Southern Region and substantially reduce the incidence of disease, especially foot and mouth disease, in other areas.

3. Promote commercial exploitation of livestock raising in specified extension areas in order to support the livestock raising associations and ranchers.

4. Improve the marketing system for livestock, with special attention to the enforcement of sanitation laws and regulations on standard grades of meat.

5. Promote livestock raising along with crop cultivation.

6. Promote the use of local products such as corn, sorghum and cassava as feed for livestock.

The specific programmes of the Livestock Department are :

Livestock Improvement Project. — This project will improve livestock quality, increase the distribution of high quality animals, and disseminate information on animal husbandry, breeding, feeding and feed preparation to the farmers. These activities will be carried out at 10 Livestock Improvement Stations, 6 Livestock Breeding and Distribution Centres, 2 Duck Raising Promotion Stations and the Thai-Danish Dairy Farm.

Dairy Cattle Raising Promotion Project. — This project will promote dairy cattle raising by improving the breeds and by research and experimentation on dairy feed crops. This project will operate at Chiang Mai.

Animal Nutrition Project. — This is a pilot research, demonstration and extension project. It will analyze animal feed and forage crops, demonstrate methods of growing feed and maintaining pasture lands and produce and distribute feed crops to farmers and relevant Government agencies. Similar projects are planned for a number of areas across the country.

Livestock Development in the Northeast Project. — This project, to be aided by the New Zealand Government, will promote a much increased production of beef cattle among farmers in this region.

Vaccine Production Project. — This project will produce improved vaccine and antigen in quantities large enough to meet the needs of farmers.

Animal Diseases Control Project. — This project is designed to both eradicate existing diseases and prevent their spreading to disease-free areas.

Veterinary Research Project. — This project will study factors affecting the health and growth of animals, and improve the means of preventing and eradicating animal diseases.

Animal Husbandry Research Project. — This project will emphasize research on the quality and production costs of animal feed, on feeding methods and the use and maintainance of grazing land.

Swine Improvement and Promotion Project. — This is a joint project between Kasetsart University and the Livestock Department. It is designed to improve breeding, feeding, disease control and marketing. The project will also be a centre for a swine-raising demonstration and training programme.

Beef Productivity Improvement (Cattle and Buffalo) Project. — This will accelerate cattle and buffalo production.

Forestry Department

The Department of Forestry now has 170 Forest Protection Units across the country, about one third of the 500 such units to be established eventually. Afforestation to teak and other woods has been completed in an area covering 257,000 rai; an additional 32,000 rai in a number of river basins have also been afforested by 12 Watershed Improvement Units. This represents part of the activities designed to improve forest conservation, and increase usable forest resources.

A Forest Resources Survey Project. — A second survey of Thailand's forest resources is being carried out. Mapping by aerial photography is progressing at the rate of 20,000 square kilometres annually. This data will assist materially in developing future forestry policies.

Silvicultural Research Project. — This project will carry out research on silviculture, soil, genetics and protection against insect damage and natural disasters.

Watershed Management Research Project. — This project will carry out research on soil, crops and water in various river basins to assist in the management of resources in these areas.

Wood Technology Research Project. — This project will study the characteristics of woods and other forestry products with a view to increasing their use in industry.

Forest Reserves. — The Department will reserve approximately 250,000 square kilometres of forest land across the country at a rate of 30,000 square kilometres annually. This project will build and repair the existing boundary lines of between 5,000 - 8,000 square kilometres of National Reserve each year.

Forest Protection Project. — This project will establish at least 100 additional forest protection units to patrol the vast areas of valuable forest where deforestation is a severe problem.

Wildlife Conservation Project. — This project will set aside two special areas, one for wildlife management and the other for wildlife conservation.

Forest Management Project. — The object of this project is to manage and improve forest areas in order to reach higher levels of sustained yields. Ten forest management units will be established each year for this purpose.

Teak Plantation Project. — Teak will be planted at the rate of at least 20,000 rai annually. Other species of trees will be planted on 10,000 rai a year.

Management of Botanical Gardens and National Parks. — The Department will establish 10 additional national parks during the plan period and one or two wilderness areas each year.

Watershed Management and Improvement Project — This project will survey 10,000 square kilometres of severely damaged watershed and reforest 92,500 rai. A total of 17 river basin improvement centres will be established.

Land Development Department

At present, there are about 80 million rai of cultivable land, of which 45 million rai are used for rice farming and 5 million rai for rubber plantations. The remainder is used for upland crops, fruits, vegetables, and for pastures. The available production data indicate that the present cultivable area can be expanded. The Food and Agricultural Organization (FAO) has estimated an expansion of 1.6 per cent per year during the period 1962 - 75, and 0.5 per cent per year in the ten years after 1975. Cultivable land expansion is thus less than the projected population growth rate in both periods. This means that higher production per capita requires increased productivity per rai and that, in turn, requires greater emphasis on land reform, particularly of land tenure.

A survey by the National Statistical Office in 1968/69 shows that 17 per cent of all farmers, and 41 per cent of farmers in the Central Plain, are tenants. And in all probability an even higher proportion of the thousands of new farm families each year will be tenants.

The Department's policy is to expedite land development for the benefit of both landowners and tenants. Its major activities are listed below.

1. The survey of the land classification is being accelerated and a soil capability survey will be set up to indicate the suitability of agricultural land for different crops.

2. Land development projects will be established in areas of coastal swamp, acid and saline land, and foothill land.

3. The existing selfhelp settlement projects and settlement cooperatives have not been satisfactory because of a lack of cooperation with technical agencies, particularly extension and farm management services. Each land colonization project, therefore, should have a Coordination Committee to plan and supervise the work on a comprehensive basis.

4. At present, there is a lot of land completely or partly unusable because it is swampy, acid or saline. Surveys, land - use plans and development projects are required in such areas as Ku La Rong Hai Plain, Rangsit Plain, Nakhon Nayok Plain, etc. These lands can be developed into pasture land for cattle raising, shrimp farming or fresh water fish farming.

5. An expansion of land consolidation will be supported, and it will be undertaken at the same time as farm management planning and the issue of land title certificates. All these will be included in a comprehensive development programme which will be the joint responsibility of the Land Development Department, Land Department, Irrigation Department and Land Cooperative Department.

6. During the Third Plan period there will be an acceleration of the irrigation system to fulfill the water demand in the operational areas for 4,466,905 rai in wet season and 1,957,400 rai in dry season. For the success of the project, coordinated planning by the agencies concerned is required. The following land development tasks are needed in the project area:

— Soil survey, mapping and soil capability study.

— Survey and study of farmers' land tenure and economic status.

— Recommendation for water utilization and land improvement for the crops planted.

— Production evaluation.

7. A basic policy is to encourage farm ownership, to guarantee the tenure rights of farmers and to ensure that the terms under which farm tenants occupy their land are equitable. Its implementation requires :

— Long - term low - interest loans to landless farmers from the Land Acquisition Fund,

— Full support to the Land Settlement Cooperatives.

— Land reform through the full use of various measures available under the constitutional law.

Agricultural Institution

The agricultural institutions dealt with in this section are 991 Cooperatives, 4,196 Farmers Associations, 210 People Irrigation Associations and 96 Water Users Associations. In total, these institutions have a membership of 696,000 families. The details of the institutions are shown in Table 8 - 2. There are a number of other types of farmers institutions - fishermen's associations and ARD agro - business groups are examples - but most of them are as yet in the formative stages.

Since there are about 5 million farms in the country, it can be seen that the number of families belonging to one kind of group or another represents only 14 per cent of the potential total. The farmer institution movement thus lacks the strength it should have to be an effective tool in agricultural development.

TABLE 8-3

Farm Institutions in 1971

Type of Association	Number	Membership (Families)	Land Holding Rai	Responsible Government Agency
1. Cooperatives	991	269,704	1,393,875	
a. Multi-purpose	1	3,000	38,000	Office of Under Secretary of State Ministry of National Development
b. Land Cooperatives				
i) Land Improvement Cooperatives	162	45,534	1,104,560	Land Cooperative Department
ii) Land Settlement Cooperatives	269	6,686	174,732	
iii) Salt Settlement Cooperatives	17	233	7,948	
iv) Fisheries Settlement Cooperatives	6	91	8,118	
v) Land Hire-Purchase Cooperatives	64	1,061	53,124	
vi) Land Rent Cooperatives	10	237	7,393	
c. Marketing and Credit Cooperatives				Department of Market and Credit Cooperatives
i) Agricultural Cooperatives	316	137,505	—	
ii) Credit Cooperatives	41	15,489	—	
iii) Agricultural Product Marketing and Industrial Cooperatives	37	10,843	—	
iv) Rice Marketing Cooperatives	68	49,025	—	
2. Farmer Associations	4,195	205,448	5,500,000	Agricultural Extension Dept.
3. People's Irrigation Associations	210	177,616	5,199,576	Local Administration Department*
4. Water User Associations	96	42,928	1,817,741	Royal Irrigation Dept.
Grand Total	5,492	695,696	13,901.692	

* To be transferred to Ministry of Agriculture

Source : Ministry of National Development, Ministry of Interior and Ministry of Agriculture

Policies and Projects

1. In the Third Plan the activities of multi-purpose cooperatives will be strengthened and expanded in 17 selected irrigation projects. The major projects are the Bigger Chao Phraya, Lam Praplerng, Lam Pao, Nam Pong and Phetchaburi. In these projects the Ministries and Departments concerned will coordinate their activities through the multi-purpose cooperatives. The operations of the multi-purpose cooperative at Amphoe Saphaya is an example of the kind of coordinated action that is possible.

2. Policy during the Third Plan calls for establishing larger and more efficient units by grouping small credit cooperatives. The Rice Marketing Cooperatives will be strengthened by providing greater support for those engaged in rice milling and creating new warehouse and silo cooperatives.

3. During the Third Plan strong support will be given to the applications of credit and marketing cooperatives for loans from banking institutions.

4. The activities of Land Settlement Cooperatives, Land Hire - Purchase Cooperatives and the Land Acquisition Fund will be expanded.

5. Continued support will be given to the work of the Cooperative League in extending training services to cooperatives, in order that they will, as quickly as possible, be in a position to handle their own affairs.

6. The Plan calls for the combining of farmer groups that are not in the cooperative movement into legal associations at the Amphoe level. Legislation will be brought forward in 1971 to make such associations legal entities and to permit them to apply for a cooperative charter if they meet the requirements.

Major Cooperative Projects

The major multi - purpose cooperative project is located at Amphoe Saphaya, Chai Nat Province, and is being assisted by experts provided by the Government of Taiwan. The multi - purpose cooperative will operate in the area of credit, marketing, irrigation and agricultural extension. For the purpose of land consolidation the Government will help by providing grants amounting to 70 per cent of the cost, and long - term loans to finance the remaining 30 per cent of the cost.

Land Cooperative Department

To expand the programme of land improvement, the Department will promote the establishment of land cooperatives in all regions, covering a total area of 5.78 million rai. Of the total, 4.08 million rai are in the Operational Area of the Ministry of National Development. Promotion efforts will be concentrated on the following irrigation projects :

Greater Chao Phraya	— 3.03 Million rai
Phetchaburi	— 0.27 ,, ,,
Lam Praplerng, Nam Pong, and Lam Pao	— 0.70 ,, ,,
Mae Wang and Mae Ping	— 0.80 ,, ,,
Other	— 1.70 ,, ,,

The objective of these cooperatives is to construct weirs and set up water pumps where they are needed.

Land Settlement Cooperatives

These cooperatives will engage in road building, water distribution systems, land clearing and credit. Additional cooperatives will be established in an area covering some 600,000 rai in the following localities.

Province	**Amphoe**
Chiang Mai	Hot
Nakhon Phanom	Don Tan, Mukdahan
Nan	Pua
Udon Thani	Phen
Buri Ram	Ban Kruat (6 areas)
Surin	Si Kao
Nakhon Si Thammarat	Pak Phanang
Surat Thani	Kanchanadit
Prachin Buri	Various areas

The Dairy Cattle Raising Cooperative will set up a milk processing plant in Bangkok and will expand the operations of the Milk Collecting Centre. Officers of the Department will actively assist in improving the management of this cooperative.

Department of Market and Credit Cooperatives

One major objective is to increase the effectiveness of many small credit and marketing cooperatives by combining them into larger Agricultural Cooperatives. The resulting increase in capital will give these cooperatives the capacity to handle the volume of credit that modern farming requires. The Third Plan calls for establishing 10 new large Agricultural Cooperatives a year. A loan of up to 1 million baht for setting up each Agricultural Cooperative will be provided by BAAC. They will have access to further loans later for improving and expanding their services. It is expected that as a result of the consolidation and improvement of credit services the new cooperatives will increase their membership to 150,000 families in 1976.

Irrigation

The reservoirs completed or under construction in Thailand are capable of irrigating 12.5 million rai, but a large part of the necessary ditch, dike and village level irrigation and drainage systems still remains to be completed to achieve this potential. It should be noted, moreover, that even when these systems are completed, a major part of the 12.5 million rai of irrigable land can only be irrigated during the monsoon season. The Greater Chao Phraya Project, which was expected to irrigate 1,375,000 rai during the dry season, can actually irrigate only 400,000 - 500,000 rai, or 40 per cent of the original estimate. Moreover, a survey in 1970 showed that farmers in the area actually used only 100,000 rai to grow dry season crops.

It is clear, therefore, that irrigated agriculture in Thailand is far below its potential, and that much needs to be done to realize an adequate return for the country's heavy investment in irrigation projects.

The Sirikit Dam now under construction is scheduled to be completed in 1972. Some water from this reservoir will be supplied to the Greater Chao Phraya Project and the Uttaradit and Phitsanulok Projects, to assist in irrigating an estimated 2,8 million rai in the dry season. Expansion of the dry season cropping area to this extent, however, would require added investment in these irrigation systems, because the system installed at the Greater Chao Phraya Irrigation Project is not yet complete. The drainage system is not fully installed, and the distribution canals need some improvement to make water control fully effective.

The incomplete irrigation systems in these and other projects stem from a variety of causes ,which may be summarized as follows :

1. Hydrological data now being collected are inadequate for comprehensive project planning. This is one of the factors which cause some projects to fail as, for example, the water shortage in the Bhumibol Reservoir. At present RID, NEA and the Meteorological Department are responsible for collecting hydrological data in 47 basins. Most of these statistics are incomplete and cannot be used as a basis for projections. The unpredictability of yearly rainfalls is also a major factor affecting irrigation planning, particularly when severe drought prevails for several years in a row.

2. Most farmers are not well enough prepared to change from rained to irrigated agriculture, and so irrigation water is frequently wasted. Even in the areas where there are laterals, ditches and dikes, farmers still do not know - how to help themselves by working together to bring water into their land. This problem must receive careful attention during the Plan period so that existing facilities are used to best advantage.

3. The multi-purpose water development project includes irrigation, flood control and electricity generation. There are competing claims for limited resources. For example, in the dry season, the need for the water from the Bhumibol Dam to protect against intrusion of the sea water in the lower Chao Phraya area conflicts with the need to maintain a certain level in the reservoir for power generation. Firm priorities in conflicts of this kind are urgently required.

4. There is lack of coordination in water resource development. A large irrigation project requires heavy financial support over an extended construction period and, of course, the benefits are correspondingly delayed. Though there are many water resource projects under way in Thailand, not a single one has been completed. This is mainly because of a failure to integrate irrigation with agricultural development. Irrigation alone will not raise productivity in agriculture unless it is accompanied by a full range of complementary services, such as land development, the extension of modern farming techniques and credit, transportation and marketing facilities. Since, in fact, none of these services are available in most irrigation projects it is difficult to reap full benefits from them.

To remedy this situation the policy during the Plan period will be to bring existing irrigation projects to completion. Specifically this means to complete distribution and drainage systems and the integrated application of irrigation to agricultural production. Some new irrigation projects may be needed, but they will have lower priority than the completion of present systems and the development of irrigation. The Ministry of Agriculture and agencies with agricultural responsibilities in the Ministry of National Development will work in close coordination on these matters, in accordance with the Supervision and Coordination Plan.

Water Resource Development Planning. — In general, water resource development in Thailand has concentrated on the construction of dams and structures. Little attention has yet been given to the idea of comprehensive planning, covering the whole system from watershed conservation to the most economical use of water. Moreover, there is no master plan for the development of all water resources, which would consider every basin and set up a clear system of priorities. The lack of such a master plan has led to the construction of dams, site by site, without consideration to related projects in the same basin or other basins, all of which is completely contrary to the concept of comprehensive planning.

The following set of priorities have been established for the Third Plan period :

1. Expediting the completion of existing distribution systems, including ditches and dikes, and drainage and land levelling projects. The most urgent project is the Water Tank Irrigation Project in the Northeast.

2. Increasing the budget allocations for small water resource development, including ground water, and also for the distribution system and its maintenance. RID should take immediate steps to develop specific project plans.

3. Equity considerations may require some new irrigation projects. Because of the high priority assigned to completing the construction of the current projects, selection of new projects will be based on the following criteria :

a) the area is arid but suitable for irrigation ;

b) irrigation development will benefit a large area and a large number of farmers ;

c) a feasibility study has demonstrated that irrigation development is justified on economic grounds or, if not, irrigation development is necessary to national security ;

d) the cost of irrigation development is not beyond the Government's financial capability ;

e) if a foreign loan is required, the source of the loan must be reliable, and the institution making the loan must approve the project.

4. Water Management and Water Use - Despite the fact that Thailand has had irrigation for decades, a very limited number of farmers really understand the principles of irrigated farming. Even in the best region, the North, optimum use of water has not yet been achieved. Effective water use calls for an efficient distribution system at the farm level. Most of the farmers still wrongly believe that distribution systems at the farm level (ditches & dikes) are the responsibility of RID, and despite the efforts of farmers' organizations, particularly Land Cooperatives and People's Irrigation Associations, most farmers still hold this view. Within irrigated areas, therefore, expansion and strengthening of farmers associations and cooperatives and the education of farmers in the principles of irrigation farming will be another prime objective of the Third Plan. So, in the areas under irrigation, the establishment and expansion of various forms of farmers' associations should be expedited to educate the farmers in the principles of " Irrigation Agronomy ".

The Principal Irrigation Projects

The following indicate the progress made on irrigation projects, most of which have been carried over from the Second Plan.

Vachiralongkorn Diversion Dam and Distribution System. — This is the main irrigation project in the Western Region. The first stage of the work was begun in 1964 with the construction of the diversion dam and distribution system to irrigate an area of 2,519,000 rai in the wet season. The project is exptected to be completed in 1977. In addition to the irrigation benefits, this project will also assist in flood control and navigation.

Pran Buri Storage Dam and Distribution System. — The storage dam on Pran River in Prachuap Khiri Khan has a capacity of 445 million cubic metres. In addition to irrigating about 220,000 rai in the rainy season and 144,000 rai in the dry season, the project will assist in flood control in the Pran Plain. Construction was begun in 1967 and will be completed at the end of this Plan period.

Nam Oon Storage and Distribution System. — This project is located in Sakon Nakhon Province and it is one of the most important storage dam project in the Northeast Region. It will have a storage capacity of 524 million cubic metres. Construction was started in 1967 and it is expected to be completed in 1974. Aside from the benefits of irrigating an area of 200,000 rai in the rainy season and 100,000 rai in the dry season, this project will help to prevent flood damage in the Nam Oon basin and Huay Hang Pla.

Pattani Diversion Dam and Distribution System. — This project involves the the construction of a diversion dam and distribution system to irrigate an area of 300,000 rai in the rainy season. Construction was started in 1968 and will be completed in 1977. If the Bang Rang Storage Dam, a multi-purpose project, were to be undertaken it would add 870 million cubic metres to the storage capacity of the system, and it could irrigate an additional 300,000 rai and generate another 36,000 kilowatts.

Sirikit Storage Dam. — This is a multi-purpose project in the Nan River. The capacity of the storage dam is 10,500 million cubic metres, capable of irrigating 1,551,000 rai in the rainy season, 2.5 million rai in the Greater Chao Phraya Project during the dry season and 300,000 rai in the Uttaradit-Phitsanulok Project. It will also generate approximately 500,000 kilowatts of electricity. The project was started in 1967 and will be completed in 1972.

Ditch and Dike Programme. — This programme will construct laterals or double dikes and water control in an area of 1,264, 700 rai.

Water Tanks. — In the Third Plan period the target is to construct water tanks in various areas, up to a total capacity of 300 million cubic metres. This will assist in the cultivation of about 1,500,000 rai outside the boundaries of the irrigated areas.

Weirs. — Diversion weirs and water supply systems will be constructed, covering an area of 600,000 rai during the next five years.

Bang Pra Water Tank, Chon Buri Province. — The height of Bang Pra Water Tank's dam will be raised during the Plan period. This was the first big water-tank in the Eastern Region. It was constructed in 1953 and completed in 1959. Total storage capacity is 22 million cubic metres. The storage tank was used to relieve the general water shortage in this area, but because of the rapid growth of industry and population in Chon Buri Province the capacity of the tank cannot meet present demands, much less the very large requirements of the newly established petro - chemical industry. It is necessary, therefore, to increase the storage capacity of the water tank by 100 million cubic metres. The preparatory work was initiated in 1971, construction will start in 1972 and completion is scheduled for 1973. The total cost of the project is 229 million baht.

New Canal, Ditch and Dike Systems. — Irrigated agriculture will be developed in the Greater Chao Phraya Project over an area of 3,340,730 rai in the rainy season and 1,305,000 rai in the dry season; in the Northeastern Irrigation Project over an area of 707,300 rai during the wet season and 490,000 during the dry season; in the Southern Irrigation Project over an area of 330,000 in the rainy season and 100,000 rai in the dry season; and in the Northern Irrigation Project over an area of 88,875 rai in the rainy season and 62,400 rai in the dry season.

Total operational area will be 4,466,905 rai in the rainy season and 1,875,400 rai in the dry season. The reason for selecting these areas is that they have fertile soil, and the storage dam and ditch and dike programme is largely completed. The work will be conducted within the budget limitations The amount of work to be conducted in each area is shown in Table 8 - 4.

Accelerated Rural Development Agricultural Projects

Accelerated rural development policy in the field of agriculture is to establish, in the politically sensitive areas, agricultural activities which will provide a comprehensive programme at the Muban and Tambon level. This, of course, will help the rural people to obtain the full benefits of Government services and thus develop sufficient economic strength to be self sustaining and to maintain stability in the rural areas.

Basic Development Programme. — The main project is long-term water resource development which will improve and expand water resources for public and farm use in ARD areas of water shortage. During the Plan period this project will excavate 950 wells, construct 1,900 standard ponds, dig 2,450 deep wells and construct small weirs and water tanks in areas where they are needed.

Accelerated Rural Economics Development Programme. — The one main project is Rural Agricultural Business, the purpose of which is to increase farmers' income by combining farmer groups into Institutions at the Amphoe level. During the Plan period this type of institution will be established in 140 Amphoes.

ARD Comprehensive Package Programme. — The main projects are cattle and buffalo raising, fresh water fish culture, upland crops and sericulture. These projects will help the rural people to achieve higher incomes and living standards. These activities will be conducted in various Amphoes.

Agriculture Credit

The Kasetsart University agricultural credit survey, in 1963, indicated that the Cooperatives Bank had made loans of about 200 million baht to the farmers, accounting for more than 90 per cent of credit extended by all Government agencies. This amount, however, was not more than 5 per cent of the total credit obtained by the farmers.

The Bank for Agriculture and Agricultural Cooperatives (formerly the Cooperatives Bank) is the main institution for extending short - and medium-term credit to farmers cooperatives. At the end of 1970, agricultural loans amounted to 1,209 million baht from BAAC, 123 million baht from the Bangkok Bank and about 25 million baht from other commercial banks. Total agricultural credit from these institutions is therefore about 1,357 million baht.

Since progress in agriculture depends on new inputs and techniques, the prices of which are steadily rising, it is apparent that farm credit requirements will increase in years to come. It should also be noted that agricultural loans by financial institutions represent less than 15 per cent of total agricultural credit requirements.

Policy and Measures. — Agricultural credit, both short and medium-term, will be expanded during the Third Plan period, and serious consideration will be given to establishing an agency to provide long - term loans. Specific measures to be taken are as follows :

1. Increase the authorized capital of BAAC to double its present legal limit, i.e. from 1,000 million baht to 2,000 million baht.
2. Introduce special legislation to authorize the issue of floating bonds to assist farmerss in purchasing land.
3. Expand the discounting operations of BAAC and other banks.
4. Encourage commercial banks to expand agricultural loans.
5. Promote loans from foreign financial institutions for agricultural development.
6. Facilitate the grant of credit by financial institution in the special agricultural promotion areas.
7. Establish a special credit agency for the purpose of extending long-term low interest loans to farmer cooperatives and associations. The latter will, in turn, make loans to farmers with repayment periods long enough to allow the purchase and development of land.

Farmer Aid Project. — This project is directed by the Farmer Aid Committee. It was established in 1966 by combining farmer aid programmes in various Government agencies. Its purpose is to increase agricultural production, to stabilize the price of paddy and to extend the availability of agricultural credit.

To help increase productivity the Government provided credit to the farmers through three institutions (Farmer Groups, People Irrigation, and Cooperatives) for the purchase of fertilizer, water pumps, sprayers, insecticides and other equipment. The Budget Bureau has appropriated fund for this purpose in the following amounts: 30 million baht in 1966, 100 million baht in both 1970 and 1971 and 130 million baht in 1972.

The administration of these loans raises difficulties. Farmers cannot pay, or cannot pay in time, and the burden of collection falls on the local administration officer or the local extension officer. This works against these officers in their regular function, because local administration and extension work both require the understanding and close cooperation of farmers, and neither are likely to be extended to a debt collector.

To solve these problems, consideration is being given to a pooling of these scattered farmer aid funds into one " Trust Fund ", which will be deposited with the Bank for Agriculture and Agricultural Cooperatives. Responsibility for approving loans to farmers will rest with a committee, although its administration will be carried out by BAAC.

Paddy Price Support. — The Government has maintained a minimum paddy price since 1966 by fixing the guaranteed price each year and setting up buying units in Bangkok and in the provinces. In 1971, 50 million baht from the Farmer Aid Fund was assigned for this purpose. During the Third Plan paddy price support will be the responsibility of farmer institutions. These farmer institutions will also be responsible for price guarantees for specific crops covered by the accelerated agricultural plan.

Agricultural Credit. — The Bank for Agriculture and Agricultural Cooperatives was established in 1966 and since then the Budget Bureau has allocated an annual budget to this bank; in 1971, the budget was 210 million baht. During the Third Plan it is expected that the Bank's capital will be increased by an additional 1,000 million baht.

Agricultural Marketing

Marketing, both domestic and foreign, is one of the main problems in the production promotion scheme. Product prices fluctuate widely during the year, and drop to a seasonal low point in the harvesting season. Because most farmers cannot afford to withold their crops until the prices improve, they frequently have to dispose of the harvest at prices which do not cover their costs . In the Third Plan, improved marketing techniques and the accelerated agricultural production plan will tend to stabilize prices and thereby help the farmer to get a fairer return. The following measures are designed to implement this policy :

1. Strengthen farmer institutions so that they can dispense with the services of middlemen.
2. Planning for the commodities under the accelerated agricultural production plan will cover all phases, from production to marketing. Action committees or working groups will be set up to accomplish these tasks.
3. The setting of guaranteed minimum prices will encouraged.
4. The Ministry of Agriculture will cooperate with the Ministry of Economic Affairs in improving marketing at the farm level, including the provision of agricultural information to farmers.

Marketing. — The Multi - purpose Cooperative Project will assist its members in both the production and distribution of their crops.

The Government has also undertaken to bring forward legislation to legalize various farmer groups so that they can operate more effectively. The Bank of Thailand has increased its agricultural discounting operations. This will also make the farmer institutions more effective in assisting farmers to market their crops.

Fertilizer. — Fertilizer is an important factor in increasing the yield per rai. At present, the Government is prohibiting the import of nitrogen fertilizer in order to provide a guaranteed market for the Chemical Fertilizer Co. Ltd. It is recognized that accelerated agricultural development is only possible if fertilizers are available to farmers at prices they can afford. The operations of this factory should therefore be reviewed by a chemical engineering expert to determine the feasibility of reducing costs, or producing fertilizers by other means.

Agricultural Development Budget

The investment for agricultural development comes from the private sector, the national budget and foreign loans and assistance.

National Budget. — At present, the agricultural development budget is only 20 per cent of the national economic and social development budget. Part of the reason for this relatively low expenditure is that the work of most of the agencies concerned has been limited in scope, and many have been hampered in their work by a lack of qualified officers. But since the Third Plan gives priority to agriculture, these agencies will be able to recruit more qualified staff and operate on an expanded scale. The agricultural development budget (excluding RID) will increase at the rate of 10 per cent per year.

As mentioned earlier, irrigation policy will place priority on the distribution and drainage systems in the areas where the dams have been built. Furthermore, RID will expedite the completion of on - going projects: as a result, the irrigation development budget, which now represents 50 - 60 per cent of the agricultural development budget, will require a smaller part of agricultural development funds in coming years. (See Table 8 - 4)

TABLE 8-4

Agricultural and Irrigation Development Budget

(Unit : Millions Baht)

Government Agency	Budget 1972-1976					Total
	1972	1973	1974	1975	1976	
Ministry of Agriculture						
Office of Under-Secretary of State	46.71	50.33	57.45	65.55	72.20	292.24
Department of Agricultural Extension	106.42	125.26	139.29	156.23	172.45	699.65
Department of Agriculture	126.54	143.34	161.96	183.17	210.33	825.34
Department of Rice	62.50	71.20	76.80	81.50	90.10	382.10
Department of Fishery	67.60	66.36	73.34	75.10	80.20	362.60
Department of Livestock	109.43	121.20	126.37	139.70	150.05	646.75
Department of Forestry	119.83	121.66	136.97	155.01	174.96	708.43
Ministry of National Development						
Office of Under-Secretary of State	8.19	19.06	24.96	26.23	32.18	110.62
Department of Land Development	76.53	87.28	97.00	98.20	105.30	464.31
Department of Credit and Marketing Cooperatives	13.47	15.28	17.73	20.58	23.93	90.99
Department of Land Cooperatives	56.04	72.17	88.49	103.26	115.65	435.61
Agricultural State Enterprises						
Fish Marketing Organization	5.57	12.13	10.14	5.61	6.00	39.45
Rubber Plantation Organization	10.45	9.88	0.12	—	1.72	22.26
Forest Industry Organization	11.33	8.32	9.75	8.70	11.69	49.79
Office of the Rubber Replanting Aid Fund	29.86	40.42	145.06	168.83	166.64	550.82
Sub-Total	850.56	960.89	1,165.03	1,287.67	1,413.41	5,680.96
Others						
Agricultural Credit	220.00	220.00	220.00	220.00	220.00	1,100.00
Farmer Aid Programme	150.00	150.00	150.00	150.00	150.00	750.00
Land Acquisition Fund	33.16	35.00	40.00	45.00	50.00	203.16
Local Administration and Accelerated Rural Development.	69.13	84.64	91.00	99.67	106.73	451.22
Sub-Total	472.29	489.69	501.00	514.67	526.73	2,504.38
Royal Irrigation Department						
Large Dam Construction	698.10	685.30	708.60	540.00	560.00	3,192.00
Irrigation Tanks	126.00	155.00	170.00	180.00	190.00	821.00
Diversion Irrigation	150.00	162.00	165.00	180.00	200.00	857.00
Ditches and Dikes	50.00	55.00	55.00	65.00	65.00	290.00
General Irrigation	209.00	265.00	278.00	318.00	348.00	1,418.00
Roads on Embankments	63.00	65.00	65.00	70.00	70.00	333.00
Sub-Total	1,296.10	1,387.30	1,441.60	1,353.00	1,433.00	6,911.00
Total	2,618.95	2,840.88	3,108.03	3,155.34	3,373.14	15,096.34
Cooperation						
Loans	—	—	—	—	—	11,635.00
Foreign Assistance	—	—	—	—	—	850.00
Grand Total	—	—	—	—	—	17,581.34

Foreign Loans and Assistance. -- For the most past, foreign loans for agricultural development have been for the construction of irrigation projects. None were for direct agricultural development. Policy in the future will be to negotiate loans to help solve the major agricultural problems (agricultural credit, fishery development, agricultural equipment, accelerated agricultural production projects) or as counterpart funds for those institutions set up to provide loans for agro-industry.

Foreign assistance to agriculture has generally been small and scattered, and not as fruitful as expected. Consideration will be given to an assistance plan for a number of large projects. The plan would follow the priorities of the National Plan by concentrating on export commodities, promotion of special crops, and direct assistance to farmers.

Fish Marketing Organization. — At present, this organization operates two fish markets, one in Bangkok and the other in Samut Sakhon and seven fishery piers, six located in the Southern Region and one in the Eastern Region. Only the fish market in Bangkok and some of the fishery piers actually operate at a profit. This is because the objective of the organization is to provide service to the fishermen, rather than profit.

During the Plan period consideration will be given to the building of three additional fishery piers, at Puket, Satun and Chumphon and to the enlargement of fishery piers at Songkhla and Hua - Hin, and the fish market at Samut Sakhon.

Cold Storage Organization. — The Cold Storage Organization was established in 1958 with the twin objectives of increasing the incomes of fishermen and aiding the consumer by reducing the seasonal fluctuations in the price of fish. The Organization has been operating at a loss during the past few years because of rising administrative costs. Consideration is being given to the possibility of reducing costs by merging the Fish Marketing and Cold Storage Organizations.

Rubber Plantation Organization. — This Organization is operating high yield rubber plantations, seeding high yield varieties in the expanded rubber estates, and replanting. From 1963 - 1971, the organization planted high yield rubber trees in the second rubber estate on a total of 10,400 rai. In 1971, a block rubber plant was built by the organization to produce block rubber from the latex of the second high yield rubber estate. In the Third Plan, high yield rubber trees will be planted on 3,200 rai per year in 1972 and 1973, thereby completing the second estate. A second block rubber plant will be built in 1975 to produce block rubber from increases in latex output of the second estate.

Forest Industry Organization. — In the Second Plan, this organization planted teak and other lumber trees in 6 areas, on a total of 18,000 rai. In the Third Plan, the organization, using its own financial resources, will increase the plantation acreage from 6 areas to 10 areas and will plant teak and other wood trees on about 10,000 rai annually.

Poultry Industry Organization. — This organization was established in 1953 with the objective of promoting poultry raising by selling quality bred chickens and animal feed. The work of the organization will continue during the Third Plan.

The Rubber Replantation Aid Fund. — This fund is collected from the rubber exporters and is used for replaning old rubber trees with high yield varieties. From the establishment of the fund, in 1961, till 1970 a total of 420,000 rai have been replanted, a small area if it is compared with the total area. In the Third Plan, rubber replanting will be accelerated to bring the total area of replantation to 1,150,000 rai in 10 years. To reach this target will mean replanting more than 100,000 rai per year from 1972 to 1976.

CHAPTER 9
INDUSTRY AND MINING

During the Second Plan (1966 - 71) industrial output increased at an annual rate of 11.5 per cent, half again as fast as the growth of national income, and by 1971 industrial output accounted for 17 per cent of Gross Domestic Product. Employment in industry increased by an average of 20,000 annaully, reaching 750,000 in 1971. Industrial employment now represents 5 per cent of the country's total work force.

During the past five years new companies have been registering with the Department of Industry at the rate of 2,300 a year. By 1971 the number of registered firms had increased to 53,000. Nine out of ten firms registering during this period were small, with capital holdings of less than one million baht. They included rice mills; machine repair shops; drilling, smelting and printing firms, pharmacies, etc..

A substantial number of large firms were granted promotional certificates during the period. From 1967 to 1970, promotional privileges were given to 340 firms with a total of 14,200 million baht registered capital and 50,000 employees. In terms of registered capital, over three - fifths of this industrial investment was owned by Thais. Ownership of the remainder was distributed among such countries as Japan, the U.S.A., the Republic of China and the United Kingdom.

The Structure of Industry

The industrial structure of Thailand has changed over the past ten years. Rice mills, sawmills and oil factories now form a smaller part of the total because of an increasing variety of firms manufacturing construction materials, iron and steel, electrical goods, petroleum, chemicals, plastics, vegetable oils, and fruit canning and automobile assembly plants.

This diversification of the industrial system has helped the country to become more self - supporting, because some industries, e.g. food processing, textiles and construction, are able to export. At the same time, the increasing range of products manufactured in Thailand has made the country less dependent on imported consumer goods and semi - processed materials.

The most rapid expansion has occurred in the production of consumer goods, for a number of reasons. First, the demand for import substitutes was strong and easily identified, and import substitution was encouraged by special promotion privileges. Secondly, the production of capital goods and basic materials generally require a broader market and a larger investment than is generally available in Thailand, and these industries therefore expanded more slowly.

The Government played a significant role in the industrial development during the Second Plan period. One important step was the Promotion of Industrial Investment Act, under which special privileges were granted to foreign investors, including exemption from imports and income taxes, and business taxes on raw materials for five years, freedom to bring in foreign technicians and remit profits abroad, and the right to own land.

A second step was the extension of credit to large scale manufacturing firms, by the Industrial Finance Corporation of Thailand (IFCT) and the financing for purchases of raw materials by the Bank of Thailand. A similar service is being provided for small firms by the Loan Office for Small Industry (Ministry of Industry). This Office and the IFCT are now developing a joint programme for providing this service for small - scale companies.

The Ministry of Industry has provided a number of essential services to industry by, for example, encouraging product standardization; conducting industrial research; establishing industrial estates; providing technical service and credit to sugar cane planters, and management training. There is also a variety of services provided by the Small Industries Service Institute.

In spite of the industrial expansion that has taken place during the past decade, and to some extent because of it, there are a number of problems that need to be overcome in the Third Plan period :

1. Some firms are faced with problems stemming from an inadequate and unstable supply, or too small a market base, because they were established on the basis of short run projections. In consequence, either the supply of raw materials or the market are not large enough to continue operations on the planned scale.

2. In some instances industrial expansion is hampered by the small and ill organized capital market, and a credit system that is not flexible enough.

3. The structure of tariffs and taxes has grown unsystematically over the years. In general, the level of taxes on commodities was designed to maximize Government revenues, rather than for industrial development purposes. This has hampered the expansion of some industries.

4. Inadequacies in Government services and infra-structure have in some instances slowed the growth of industrial production. Public utilities, roads, harbours, telephones. electricity and water services need to be expanded and made more efficient, and the establishment of industrial estates should be speeded up. Stricter enforcement of industrial standards regulations is required. Criteria for the selection of industries to be granted promotion privileges are not well defined; they need to be defined precisely, objectively and promptly. Industrial data and information are frequently inadequate for the purpose of sound decisions, or are made available too late. And finally, there is a lack of effective coordination between the various Government agencies concerned with industrial development.

Objectives, Policies and Targets

General Policy Objectives

The followings are the objectives for the development of industry during the Third Plan period:

1. To strive for the transformation of an agricultural economy into an industrial economy and to increase the percentage contribution of the industrial sector in the Gross Domestic Product, simultaneously with an increase in overall growth rate.

2. To make maximum economic utilization of the country's natural resources in order to increase national income and expand employment opportunities.

3. To promote local industries as basic sources of demand for agricultural products, such as the processing of agricultural product before marketing to domestic and foreign customers.

Industrial Development Policies

1. The Government will adhere to the system of free enterprise by supporting and facilitating private industrial activities. The Government accepts responsibility for formulating policies on the provision of services, investment incentives and industrial research which will be beneficial to national development.

2. The Government will not establish additional public enterprises to compete with private manufacturing concerns. The existing state enterprises will be reviewed to determine whether it is in the public interest that they cease operation, continue or possibly operate as joint public-private ventures.

3. The Government will not nationalize private undertakings, except for national security. If nationalization becomes necessary, it will pay for the value of the property.

4. The Government will give first priority to the utilization of domestic industrial products.

5. The Government will promote export industries and those import substitution industries which utilize indigeneous raw material and labour, through the granting of promotional privileges and provision of credits through Government financial institutions. Particular stress will be placed on export industries.

6. The Government will promote medium scale industries, with more emphasis on industries which can be established in non - metropolitan areas. This will be accomplished by the provision of financial assistance through Government credit institutions, the granting of promotional privileges under the Promotion of Industrial Investment Act and by giving special reductions on the rates of electricity, water supply and other public utilities to rural industries. In addition, feasibility studies will be conducted to determine suitable types of industry for each locality, along with the provision of information services for investors.

7. The Government will develop small - scale industries, and will also promote major producers of export goods by means of subsidies, technical assistance, investment capital and marketing assistance.

8. The Government will strive for increased industrial productivity and reduced production costs. Accelerated effort will be undertaken to formulate a plan on the location of industrial areas and the establishment of industrial estates. The training of skilled manpower will be accelerated, along with the promotion of training institutions in order to increase productivity. Studies will also be undertaken to determine the possibility of developing science and technology for application to domestic industry. Moreover, private individuals will be encouraged to invest in industrial undertakings.

9. The Government will promote the standardization of industrial products and the expansion of the market for Thai products both domestically and abroad. This will be accomplished by accelerating the completion of the industrial standard classifications which will be strictly enforced. Cooperation will also be encouraged among the various Government agencies concerned, including the Thai Industry Association, in the formulation of programmes to expand markets for various industrial products.

10. The Government will give special support to industries that process agricultural products.

Production Targets

Production targets are based on an increase in Gross Domestic Product of 25,000 million baht during the Plan period. Industrial employment will increase from 715,000 persons in 1971 to 785,000 persons in 1976.

Total output of the industrial sector is scheduled to increase at a rate of not less than 8 per cent per year, and its share in Gross Domestic Product is expected to be not less than 20 per cent by the end of 1976.

TABLE 9-1
Targets for Manufacturing Value Added 1971—76

(million baht)

Industry	1971	1976
1. Food	4,890	5,530
2. Beverage Industries	2,030	2,760
3. Tobacco Manufacturing	1,760	2,270
4. Manufacturing of Textiles, Footwear and Wearing Apparel	3,390	4,500
5. Wood Products	860	1,140
6. Furniture & Fixtures	640	920
7. Paper	130	390
8. Printing, Publishing & Allied Industries	600	750
9. Feather	50	80
10. Rubber Products	260	370
11. Chemicals	1,340	2,000
12. Petroleum	2,340	3,500
13. Non-Metallic Industry	1,570	1,960
14. Base Metal Industry	230	430
15. Metallic Industry	360	540
16. Mechanical Repairs	380	530
17. Electrical Machinery	280	440
18. Transport Equipment	1,550	2,570
19. Others	460	710
Total	23,120	31,370

TABLE 9-2
Major Industrial Production Targets

Industrial Products	Units	1971	1976
Sugar	Thousand Tons	580	700
Gunny bags	Million Bags	60	60
Cement	Million Tons	3	4
Paper	Thousand Tons	51	100
Vegetable oil	Thousand Tons	15	47
Automobil tires	Thousand Units	970	1,600
Petroleum	Million Barrels	41	78
Steel and Other Iron	Thousand Tons	326	750
Cloth	Million Yards	500	700
Fruit Canning	Thousand Tons	180	300

1. Sugar Industry. — During the last few years, sugar has been over-abundant as a result of the increased productive capacity. In 1969, the production of sugar was 350,000 tons, of which only 16,600 tons could be exported. In 1970 production increased to 580,000 tons, while domestic demand for sugar increased to only 400,000 tons per years. Hence, if export quota should be obtained from the International Sugar Organization, sugar production could reach 700,000 tons by 1976.

2. Gunny Bag Industry. — At present there are ten gunny bag factories in operation, with a total capacity of 60 million units per year. It is expected that during 1972 - 1976 there will be no substantial increase in production due to inadequate domestic demand, expected to be about 35 million units per year.

3. Cement Industry. — There are at present five cement factories in operation with a total annual capacity of 2,625,000 tons. During the 1972 - 1976 period two additional factories will start operation. Thus by 1976 total production will be approximately 3,150,000 tons.

4. Paper Industry. — At present there are 27 paper factories registered at the Ministry of Industry, two of which are state enterprises. Nine privately owned factories have been granted promotion certificates by the Board of Investment and five have begun operations. The other four factories are under construction. The total capacity of these factories is 143,000 tons per year and the production is expected to reach 100,000 tons by 1976.

5. Vegetable Oil Industry. — There are at present 12 vegetable oil factories utilizing soy beans, groundnuts and cotton seeds as raw materials, with a total capacity of 15,000 tons. It is expected that during 1972 - 1976 production will increase to 47,000 tons.

6. Automobile Tire Industry. — At present, there are four factories, all of which received promotion certificates, with a total production capacity of 1,090,000 units. In 1976 production is expected to increase to 1,600,000 units.

7. Oil Refining Industry. — At present there are four oil refineries, which have a total capacity of about 130,000 barrels per day. The demand for refinery products is about 145,000 barrels per day and is expected to increase by not less than 15 per cent per year. During the Plan period, attempts will be made to increase production to meet the rapidly increased demand. By 1976 the supply should reach 300,000 barrels per day.

8. Steel and Iron Industry. — There are two steel mills in Thailand which are scrap iron smelters, and 30 small processing factories, with a total capacity of 460,000 tons per year in 1971. The production is expected to reach 750,000 tons per year by 1976.

9. Textile Industry. — At present there are about 400 mechanized weaving mills (cotton and man - made fibres). Total production in 1971 was 500 million yards and output will increase to 600 million yards by the end of 1976.

10. Fruit Canning Industry. — There are four fruit (mainly pineapple) canning firms, with a total capacity of 180,000 tons. During the Third Plan period an additional four firms will be established, bringing total capacity to 300,000 tons, or eight million cases.

Industrial Development Strategy

The rapidity of expansion in the industrial system depends on decisions in the private sector which, in turn, are heavily influenced by the development strategy of the Government. It is important, therefore, that the details of industrial development strategy be known. The major elements are :

1. Investment from domestic sources and from abroad will be promoted. With respect to investment from abroad, the participation of Thai nationals in industrial management and technical know - how will be encouraged. Investment will be invited from many foreign sources, to ensure that no one country obtains a disproportionate ownership of a particular industry.

2. Investment will be encouraged by means of promotion privileges, but before these are granted production schedules of the firm must be determined. Priority will be given to firms producing strategic materials for war time emergencies.

3. The granting of licences under the Industrial Act will be coordinated with the granting of promotion privileges under the Promotion of Industrial Investment Act. Both will take into account the production capability of the firm and the public interest.

4. The Government will give preference for Government contracts to domestic industries.

The acceleration of industrial development will be accomplished by means of the following special programmes :

1. The promotion of Industrial Investment. — Under the promotion of Industrial Investment Act 1962, promotion certificate were granted to 391 projects from 1967 to 1971, with a total working capital of 15,600 million baht. Such projects now number 715 with a total working capital of 24,500 million baht. During the Third Plan period industrial promotion will continue, providing special benefits to investors, including the right to own land, exemption from import, income and business taxes, free repatriation of profits, the use of foreign technicians, guarantees against competition from Government enterprises or nationalization, and in some cases, control on imports of substitute products.

During the Third Plan, the Promotion of Industrial Investment Act will be improved by placing special emphasis on exports and import substitution Companies which utilize domestic raw materials and labour and can be established outside the metropolitan area.

The Government will encourage the Board of Investment to provide more services to investors, including follow up work.

2. The Industrial Finance Corporation of Thailand. This corporation was established in 1952, and by 1971 it had granted loans to 179 investors for a total of 763 million baht. During the Third Plan period IFCT will give priority in granting loans to industries which a) produce goods for export or import substitutes, b) use domestic raw materials and c) are located outside the metropolitan area.

During the Plan period the demand for industrial loans is expected to reach 1,700 million baht, or 340 million baht per year. IFCT will thus need more capital - about 400 million baht in Thai currency and 832 million baht in foreign currency. IFCT will seek low interest loans from foreign sources for this purpose.

3. Small Scale Industry. More than 90 per cent of industrial establishments in Thailand are small scale, i.e. with capital of less than one million baht. The Government has developed a number of programmes to help such enterprises.

A Small Industries Service Institute was established in 1961 with the assistance of the United Nations Special Fund. The first phase of this programme will terminate in 1972, and the second phase will extend for a further three years. SISI will continue to provide technical extension and advisory service to small plants, to train managers and skilled workers, to develop prototypes of simple equipment, and to undertake surveys to determine what industries can profitably be established in various areas. Special attention will be given to the dissemination of engineering information, and industrial expansion in the North.

Another small industries programme is aimed at promoting cottage industry products and handicrafts for export. The Government will establish a state enterprise to improve design, open showrooms and conduct vocational training courses. The Design Centre, the Thai Industry Store, the Bangkok Handicraft Factory and the Laquer Ware Factory will be merged for greater efficiency.

Shortage of capital is a major problem for small scale enterprises run by Thai citizens. A loan programme provides assistance for new small scale firms and for the expansion of existing companies. The Office for Loans to Small Industries was set up in 1964 with a budget appropriation of 42.5 million baht, and a counterpart fund (in the ratio of 1:3) from the Krung Thai Bank. To date the office has made loans totalling 140 million baht to 533 investors. During the Plan period it is expected that loans amounting to 30 million baht can be made annually. Credit for the purchase of machinery, along with the extension of loans amounting to 5 million baht, will be made to privately - owned electric companies. In this programme the Office for Loans to Small Industry will cooperate with IFCT.

Industrial Estates

The Government has established a first industrial estate, covering an area of 700 rai, at Bangchan. Because of the urgent need for industrial estates and industrial zones during the Third Plan, a new agency will be set up under the direction of a national committee. The new agency, through the committee, will carry out surveys to determine the best locations for industrial estates, free trade zones and industrial export zones, and make recommendations to the Government. The industrial estate at Bangchan will also be put under the jurisdiction of this agency.

Productivity Promotion

The major objective of this programme is to upgrade managerial standards and increase productivity in the industrial sector. With the assistance of the UN Special Fund an Industrial Productivity Centre was established in 1962, under the Ministry of Industry, to provide technical and management training. To make this project even more effective during the Third Plan period, training specialists from the Centre will be sent to selected locations to provide industrial counselling service in management and accounting. This project will receive assistance from the UN Special Fund until 1973. Furthermore, during this period the Government will expand the programme to include training in the development of management information systems.

Scientific Research for Industry

The Applied Scientific Research Institute of Thailand undertakes scientific research in raw materials and products. The Technical Research Institute, which will receive assistance from the UN Special Fund until 1973, will carry out research on domestic raw material products in relation to the demands of the economy. During the Plan period emphasis in research work will be given to food technology and the chemical industry, while research in other fields will be carried out in coordination with a number of Government agencies.

The Department of Science will also conduct industrial research and studies to stimulate industrial development. This work includes the analysis of water for industrial use, research work in servicing of technical equipment and industrial processes, development of construction materials, testing of industrial products, research and development of ceramics, research on raw material for the paper industry and research on problems of water and air pollution.

Industrial Product Standardization

This programme will aim at improving the quality of domestically produced industrial commodities in order to gain greater acceptance by the consumer, to preventunfair competition and exploitation of consumers by producers and to increase exports of industrial products.

Since the beginning of its operation in 1967 the Industrial Product Standardization Office of the Department of Science has standardized 17 industrial products, including some produced by promoted industries. Apart from the programme for industrial products standardization, consideration will be given to the approval of trade marks and the enforcement of standardized production.

It is envisaged that during the Third Plan period 500 industrial products will be standardized and those standards enforced with the assistance of the Industrial Development Organization.

Industrial Information Centre

At present industrial data and information are still far from satisfactory and are located in many different Government agencies and private enterprises. To improve this situation, an Industrial Information Centre will be created as a central agency responsible for the compilation of data and information and to provide information to the Government agencies and the private sector.

Regional Industrial Development

To counteract industrial concentration in the Bangkok - Thon Buri metropolitan area the Ministry of Industry will increase its activities in the regions. Special privileges will be extended to increase regional industrialization, including loans from IFCT and promotion privileges for public utilities. These efforts are designed to increase incomes and employment among the rural population, make more efficient use of natural resources, and expand the market for agricultural products.

Control of Pollution

The increase in industrial establishments makes it necessary to formulate measures for the solution of problems of air and water pollution, and for the safety and health of industrial workers. For this purpose the Ministry of Industry will expand its supervisory and control responsibilities, and will conduct research and studies on the disposal of industrial waste. In addition, technical assistance will be given to various industrial establishment in the disposal of polluted water.

Equipment Collateral Registration

Under this programme industrial equipment and machinery throughout the Kingdom will be registered, so that entrepreneur - industrialists may use them as collateral for loans. Registration will also enable them to exchange equipment and machinery in order to bring about better economic and technical efficiency. To accomplish this objective the Government will accelerate the enactment of the Machinery and Equipment Registration Act.

Improvement of Rice Milling

Rice milling is the most important agricultural processing industry in Thailand. At present there are about 22,000 rice mills in the country, of which only about 5,000 are up to acceptable standards. The rice mills are scattered, small and not very efficient. In order to improve efficiency the Government will establish a rice milling experimental centre to serve as a demonstration and training station in rice milling. Foreign assistance will be sought so that this programme can be effectively carried out.

Promotion of Textile Technology

During the Second Plan period the textile industry contributed a great deal to national economic growth. To date there are more than 500 textile factories, employing more than 30,000 workers. The shortage of skilled workers is one of the biggest problems facing the textile industry. Hence, during the Third Plan period, the Ministry of Industry will increase and expand its promotional activities by conducting research and experimentation, providing technical training, quality testing services and promotion of designs for the improvement of textile quality, along with collecting data and information on the textile industry. It is envisaged that during the Plan period training courses will be offered to 300 workers annually. In order to guarantee effective implementation this programme will also seek foreign assistance.

Stabilization of Sugar Industry

White sugar will be an important export commodity and will also be a major source of income for sugar cane planters and sugar mill owners. The Government will extend credits and technical services to sugar cane growers, will facilitate long - term export sales, and will attempt to stabilize prices.

High Priority Private Industries

A number of industries are vital to the success of the Third Plan, and the Government will make special efforts to assist in their expansion. They include smelting, because of its importance in increasing export earnings; food industries, because of their importance in expanding the market for agricultural products; machinery manufacture, which will provide a basis for future expansion into the field of heavy equipment, automobiles, electrical equipment and other metal using industries; chemicals and petro - chemicals; and iron and steel manufacturing.

Automobile manufacturing will also be assigned a high priority. The nine existing automobile plants, with a total capacity of 2,000 - 2,500 cars per month, are operating much below capacity. It is the Government's policy to promote this industry, including the manufacture of spare parts.

In the development of these industries the Ministry of Industry, the Board of Investment, the Industrial Finance Corporation of Thailand, and Government public utility organizations will coordinate their efforts.

State Enterprises Industries

The relative importance of Government operated industrial enterprises will decline during the Plan period, in accordance with the Government policy not to compete with the private sector. Hence, during the Plan period there will be no substantial increase in the productive capacity of the existing state enterprises, except improved efficiency.

Oil exploration and refinery operations at Fang have been underway for a long time. During the Second Plan period 72 million baht of the budget appropriation had been allocated to this project, while income derived from its operation was only 15.5 million baht. Due to the lack of crude oil, the refinery has not been able to become self-supporting. Therefore, during the Third Plan the Government will complete by 1973, crude oil and natural gas explorations in the areas of Chiang Mai and Lamphun. It is estimated that 4.5 million baht of budget appropriation will be required for this. In addition, about 12 million baht of budget appropriation will be allocated annually to the maintenance of refineries at Angfang, Measuenluang and Chaiprakarn. If crude oil explorations in the Chiang Mai basin reveal inadequate supplies of crude oil for the refineries, appropriate action will be undertaken by the Government.

At present, the three Government owned gunny bag factories have a total capacity of 30 million units per year. During the Plan period, the Government has no intention of increasing the capacity of the existing gunny bag factories except for improved efficiency. This is because the privately owned gunny bag factories have already been able to increase their production to satisfy domestic requirements. Moreover, during the Plan period the three Government owned gunny bag factories will be merged under the same management to become a major source of demand for kenaf supplied by the Kenaf Promotion Project.

There are four Government-owned white sugar factories which account for one third of total production. At present there is an oversupply of sugar produced by private enterprises and in some years there have been problems in finding outlets for export. During the Plan period privately owned factories will be encouraged to expand production more slowly than they have in the past. There will be no increase in the capacity of Government owned enterprises, except improved efficiency and reduction in production costs. Meanwhile, the four existing Government factories will be put under one management to supply part of their production to the United States according to the U.S. quota agreement. Some of the factories will also be sold to private investors as may be deemed appropriate.

During the Second Plan promotion privileges were granted to six private pharmaceutical firms, and several other private firms were established without such privileges. In addition, the Government established the Pharmaceutical Organization to produce drugs essential for public health. It is the policy of the Pharmaceutical Organization to manufacture such critical products as saline solution and serums for hospitals, at the lowest possible cost.

At present there are five military state enterprises which supply military requirements and the domestic market. They are the Preserved Food Organization, the Glass Organization, the Batteries Organization, the Leather Tanning Organization and the Textile Organization. Over the years these organizations have become major producers. But the Preserved Food Organization is working well below capacity because of supply and market problems. During the Third Plan period these Organizations will be reviewed to determine whether they should be sold or converted to publicly owned corporations by issuing shares for sale to the public.

Other state enterprises, which include the Thai Plywood Company, the Alum Factory, the Liquor Organization, the Card Factory and the Marble Company, can probably be run more effectively under private management. The Government will therefore give serious consideration to their transfer to private investors.

Industrial Development Expenditures

Total industrial development expenditures during the Third Plan period will be 1,181 million baht consisting of 294 million baht under the Central Government budget, 117.0 million baht from foreign grants and 770.0 million baht from state enterprises.

TABLE 9-3
Industrial Development Expenditures

(million baht)

Sources	1972	1973	1974	1975	1976	Total
National Budget Appropriation	51.71	60.71	63.64	61.37	56.48	293.67
Foreign Loans	—	—	—	—	—	—
Foreign Grants	28.44	30.79	26.39	19.40	12.00	117.02
Net Revenue of State Enterprises	188.81	282.05	178.40	62.87	57.90	770.03
Total	268.96	373.55	268.19	143.64	162.38	1,180.72

Of the national budget appropriation of 294 million baht, about 190 million baht will be assigned to development projects, with the remainder reserved for the Loan Office for Small Scale Industry and the new Industrial Estates agency.

The revenue of state enterprises amount to 770 million baht derived from 18 enterprises. This sum will be distributed to the enterprises in accordance with their needs.

Mining

Present Situation

During the Second Economic and Social Development Plan (1967 - 1971) average output of the mining industry increased by 6 per cent. Export value was 2,077 million baht in 1967, rising to 2,200 million baht in 1971. National income deriving from mining activities accounts for about 2 per cent of GDP. The workers employed are estimated to be 51,000, less than one per cent of the total labour force. Most mining operations are privately owned and the majority are concentrated in the Southern part of Thailand. Tin is the most important mineral in terms of production and value of export. Other minerals are fluorite, wolfram, antimony, manganese, iron ore, gypsum and zinc. Non - metallic ores are kaolin, silica sand and marl.

During the Second Plan period the Department of Mineral Resources drilled 1,757 ground-water wells, 73 per cent of them in the Northeastern Region. Out of a total budget of 320 million baht allocated for development of mining and ground water drilling 100 million baht was assigned to mining development and 220 million baht for ground - water drilling.

To date, progress on mining development programmes has been slow, mainly because the drilling of ground - water wells has had a higher priority. The success of the well drilling programme and the benefits derived from it, particularly in arid areas, are such that the programme will continue on a priority basis during the Third Plan. Because of budget limitations the Government will be forced to finance its mining development activities by means of foreign loans and grants.

Objectives

For the Third Plan the priority objectives of the Department of Mineral Resources are :

1. To ensure the optimum utilization of known mineral resources.
2. To accelerate production of minerals for export.
3. To encourage the search for new mineral deposits.
4. To provide ground - water wells, particularly in arid areas.

Policies

The following policy guidelines are designed to achieve these objectives :

1. The Government will stimulate and facilitate mining development, placing the highest priority on those minerals, e.g. tin and fluorite, which have a strong export potential. The development of kaolin, manganese, silica sand and marl will also be encouraged.

2. The Government will continue the geological survey of the country and will grant permits to private companies for the exploration of minerals, including oil and natural gas.

3. The Government will not compete with private industry, but will rather facilitate the development of private mining activities by means of procedures and regulations on such matters as mining rights, technical assistance and marketing procedures.

4. A survey to determine the need for ground - water will be carried out, covering the whole country. In areas of need, geological surveys of soil and bedrock will be carried out in cooperation with the local administration.

Targets

The development target for the mining sector will be as follows :

1. The basic geological survey will be continued. During the Third Plan the survey will cover parts of the Northern and Southern Regions. The target is to produce data for an area of 174,000 square kilometres on 1:250,000 mapping scale and 294,000 square kilometres on 1:50,000 mapping scale.

2. To drill 700 ground wells per year, 450 in the Northeast and 250 in other parts of the country. In addition, ground - water supply systems will be installed annually in 200 villages that now have wells.

TABLE 9-4

Minerals Production and Export Targets

(Unit ; 1,000 metric tons)

Minerals	1972	1976	To be Exported
Tin (metal)	23	26	All
Fluorite	354	600	95%
Wolfram	1	1	All
Antimony	4	4	All
Manganese (battery grade)	5	7	50%
Manganese (metallurgy grade)	27	34	90%
Iron	27	30	NIL
Kaolin	7	13	NIL
Silica sand	103	116	NIL
Marl	1,986	2,804	NIL
Lignite	377	393	Small quantity
Gypsum	133	138	All
Barite	24	27	NIL
Total	3,071	4,193	—

Tin. — Thailand has exported tin ore for almost 100 years. Tin production is now estimated to be worth about 2,000 million baht per year. About 86 per cent of the output comes from Ranong province and the Central and Northern Regions. Most of the country's output is exported; less than 200 tons per year are used by domestic industries.

Expansion of tin ore production is difficult because the new sources that have been found are of poor quality and are located in remote areas. They, therefore, require large amounts of capital for their development. Nevertheless, tin now commands a high price in world markets, and development and further exploration will undoubtedly be continued.

Within the next ten years it is expected that the largest tin mining operations will be offshore. These operations are expensive and beset with difficulties such as weather and production techniques.

Fluorite. — Known world deposits of fluorite (except those in mainland China) are being depleted at a rapid rate, while the demand from industrial countries is increasing. In Thailand fluorite deposits are found in the North (Lamphun and Chiang Mai provinces) and the Central Region (Kanchanaburi, Ratchaburi and Phetchaburi provinces). From these areas output has increased steadily over the past 15 years. Exports amounted to only 1,000 tons, valued at 400,000 baht, in 1955 and increased steadily to 340,000 tons (220 million baht) in 1970.

The most important market for Thailand's fluorite is Japan. Lesser amounts are sold to the Republic of China, India and the USSR.

Wolfram. — Wolfram is usually a by-product of tin. It occurs in pure form in few places and these deposits are seldom developed because the wide fluctuations in the price of wolfram would not justify the development costs. However, large deposits have been discovered recently at Doi Mog (Wiang Pa Pao distric, Chiang Mai province), and Kao Soon (Chawang district, Nakhon Si Thammarat province) and, if there is any prospect of price stability, these deposits may well be brought into production.

Wolfram ore is exported to Japan, the United States and some countries in Europe.

Antimony. — Deposits are found in several areas of the country, notably in Rayong and Chanthaburi provinces. Production has fluctuated, and in its three forms - ore, crudum and metal - most of the output is exported.

Manganese. — Manganese is found in many parts of Thailand, though the size of reserves of the best grade (battery grade) is not sufficient to meet the export market requirements. Geological surveys will therefore be undertaken to locate more ore of this grade. Though all grades of manganese ore are exported, the strongest demand is for battery grade from the Republic of Vietnam, Malaysia and Hong Kong.

Iron. — Iron deposits are found in Thailand but not in quantities large enough for economic development. Neither are there any deposits of coking coal. Exploration for iron ore deposits of sufficient size and quality is being continued.

Kaolin. — Most kaolin is found in the Northern and Southern Regions. At present, there are only 3 mines in operation, at Ranong, Lampang and Uttaradit. Kaolin is used in many industries, e.g. paper, rubber, and brick industries. Domestic demand is small at present but is expected to grow as the paper and earthenware industries develop.

The projected increase in kaolin production is 16 per cent per year over the Plan period. Production will increase from 6,000 tons in 1971 to 12,500 tons in 1976. Existing reserves are estimated to be 15 million tons.

Silica Sand. — Silica sand in Thailand is of high quality, impurities amounting to less than 5 per cent. The major deposits are in Songkhla, Rayong and many other parts of the Southern and Eastern Regions, and total reserves are estimated at 46 million tons. Annual production is about 100,000 tons, all of which is sold to the Glass Organization, Thai Industrial Glass and Thai Asahi Glass.

Marl. — Marl is used in the production of cement. It is found in Lop Buri, Saraburi, Kanchanaburi and Nakhon Sawan. At present only one mine is operating (in Ban Mo district, Saraburi). Its annual production is 2 million tons, all of which is used by domestic cement plants.

The rapid growth of the cement industry in Thailand assures an increasing demand for marl. Output is expected to rise to 3 million tons in 1972 and to over 7 million tons in 1976.

Lignite. — There are three operating lignite mines, at Lampang, Krabi and Lamphun. Reserves are estimated to be 235 million tons. In 1971 production (370,000 tons) was used in the production of electric power and chemical fertilizer, for railway locomotives and tobacco curing. The projected production increase is one per cent per year during the Plan period.

Gypsum. — Large gypsum deposits are found in Phichit, Surat Thani and Nakhon Sawan provinces,and smaller ones in Uttaradit, Lampang, Phetchaburi, Petchabun and Loei. Reserves are estimated to be about 100,000 million tons, while production is estimated to be 13,000 tons per year. About 90 per cent of gypsum production is sold to 4 major cement factories in the country. Only 10 per cent is exported to Japan, Malaysia and Australia.

Barite. — Barite is used in drilling and ground - water surveys. Reserves are estimated at about 7 million tons. Most of the barite deposits are found in provinces of the Northern, Central and Southern Regions. The price of barite is currently relatively low and only three open - pit mines are in operation. All production is exported to Malaysia and Indonesia.

Development Projects

Government Budget Projects

1. The search for new tin deposits is one of the major projects. Although demand and price trends have not been rising in recent years, tin mining will continue to play a major role in the economy for many years to come. It is therefore important that sufficient reserves be found to maintain and even increase the present rate of production.

2. After a rapid rise in recent years, the demand for fluorite now appears to have stabilized. Several large deposits have recently been found which may make possible a production rise of 10 per cent per year. The Government will therefore facilitate transportation, including the inland waterway system North of the Sirikit Dam, and will establish stockpile yards at railway and shipping points. Assistance in establishing a beneficiation plant will also have a high priority.

3. Support will be given to domestically used minerals, such as kaolin, marl and silica sand, through research.

4. As mentioned above, the Department aims to drill at least 700 wells a year, of which 450 will be in the Northeast. The Department will also provide for the maintenance of the growing number of wells.

5. One of the major continuing projects is the geological survey of Thailand. The Third Plan period will see the completion of this project with the mapping of 174,000 square kilometres, or one - third of the total.

Foreign Loans and Grants

1. The completion of a geophysical survey, part of which was previously financed by the Government budget, will be undertaken in the Third Plan period by means of foreign loans and/or aid. Attempts will also be made to expedite mineral resources development through aerial surveys.

2. The Minerals Exploration Corporation (MECO) will be established as an independent agency for the purpose of mineral exploration as joint ventures with private companies. A fund will be set up to carry out the work, from mapping and drilling to the evaluation of results. If the results do not justify continuation of further work the costs will be borne by MECO. If further development is feasible MECO will continue its participation by facilitating the capital financing.

3. Another autonomous agency will be established, as part of IFCT, to finance projects that are found to be feasible by MECO. This institute will perform the function of underwriter for approved mining development.

4. A Mining Development Institute is also planned, to assist mining and mineral dressing through research, management and technological training and the rental of mining and other equipment. It will also conduct training courses for mining foremen.

Services for Mining Development

During the Third Plan period the Government will provide the following services for mining development.

1. Expedite legal and administrative procedures, from the permit application stage to the production stage, and revise laws and regulations which cause undue delay.

2. Through training or other means, ensure that more qualified personnel are available to improve efficiency in mining.

3. Encourage Thai citizens to participate more actively in mining activities.

4. Accelerate foreign investment, with Thai participation, in such mining ventures as petroleum, copper and zinc, where capital requirements are beyond domestic capacity.

5. Promote the development of new mineral resources.

6. Promote the efficient utilization of mining equipment by establishing an equipment rental pool.

Budget for Development

The total development budget is 290 million baht, of which 260 million will be provided by the Government and 30 million by foreign loans and aid. Of the total, 70 million will be assigned to mining development and 220 million will be for ground - water drilling.

TABLE 9 - 5

Mining Development Budgets

(million baht)

Sources of Budget	1972	1973	1974	1975	1976	Total
Government Budgets	47	53	53	53.5	53.5	260
Foreign Loans	—	—	—	—	—	—
Foreign Grants Aid	—	30	—	—	—	30
Total	47	83	53	53.5	53.5	290

CHAPTER 10

COMMERCE AND SERVICES

The commercial system is a primary force in the economic development of a free enterprise economy. It distributes the nation's products to users and consumers and makes possible international exchange of goods and services. During the Second Plan, most of the activities in commerce were undertaken by the private sector. The role of the Government was to remove obstacles to commercial growth. The only activities which obtained money from the development budget were projects to promote increased participation in commerce by Thai nationals through small business loans. Such projects were started at the end of 1968.

The problem which attracted the most attention during the Second Plan was the deficit in the balance of trade, which in 1967 - 1970 amounted to 8,150, 10,650, 11,298 and 12,258 million baht, respectively. This was because of lower prices and reduced exports of major Thai products, and the quantity of imports required for development purposes. The Government took a number of steps to correct the trade deficit, the important ones being 1) to increase customs duty for some products and 2) to eliminate the rice premiums for most grades of milled rice in order to reduce price in foreign markets and support the domestic price.

The aim of the policies concerned with commerce and services in the Third Plan is to improve such services as the identification at new markets, insurance and tourism promotion, and to correct the balance of trade deficit. Specifically, the policy is :

1. To correct the balance of trade deficit by promoting both agricultural and industrial exports, and promoting the tourism industry and services.

2. To help producers obtain a fair price for their products.

3. To encourage orderly and efficient marketing and trade systems by eliminating unfair practices by middlemen.

4. To promote the internal market development of agricultural and industrial products and, in the export markets, to search for new outlets and expand sales in existing markets.

5. To encourage Thai nationals to participate in commerce.

6. To bring about close cooperation between selling and production in order to accelerate the growth of agricultural exports.

Policies

In order to accomplish these aims, the Government will implement the following policies.

1. Maintain the principles of free trade by encouraging fair competition. The major role of the Government is to set policies and plans and to offer services which will benefit trade.

2. Establish no unnecessary new state enterprises to compete with the private sector. The Government will review and study the operations of existing state enterprises to determine which need to be improved to stimulate the development of better markets.

3. Ensure that monetary, fiscal and trade policies are coordinated for the promotion of greater production and more efficient marketing, particularly of exports.

4. Promote product research to improve methods and procedures in the production and marketing process.

5. Promote exports by finding new markets for agricultural and industrial products using domestic raw materials, advertising Thai products and providing clear information on export procedures.

6. Encourage Thai nationals to buy products made in Thailand.

7. Encourage the establishment of agricultural institutions, cooperatives and societies to improve the marketing system for primary products and the coordination between producers and buyers.

8. Promote the tourism industry, particularly in the private sector, by maintaining an attractive, secure environment, preserving tourist resources and making them more attractive to tourists.

9. The Government will encourage the improvement of tourist services in order to reduce production cost and services which will benefit commerce and be a source of foreign exchange.

Commerce

There were increases in both imports and exports throughout the Second Plan period, but the deficit in the balance of trade, which was 8,150 million baht in 1967, increased to about 12,258 million baht in 1970.

The value of imports was 21,813 million baht in 1967 (including imports of non-monetary gold of about 154 million baht). Imports increased to 26,514 million baht in 1970 (including imports of non-monetary gold of about 109 million baht). Imports of raw materials, and semi-raw processed materials and capital products increased at a rate of about 14 and 15 per cent per year respectively. Imports of consumer products increased at about 4 per cent per annum. Of total imports in 1971, 20 per cent were consumer products, 26 per cent were raw and semi-processed materials, 35 per cent were capital oods, 8 per cen were vehicles and spare parts, 8 per cent were oil and lubricating oil, and 3 per cent were miscellaneous.

During the Third Plan, it is expected that imports will continue to increase, but more slowly than during the Second Plan, and imports of consumer products are expected to drop. The value of the major imports has been estimated as follows :—

TABLE 10-1

Estimated Import Value

(million baht)

	1972	1976
Consumer products	5,200	5,450
Capital goods	9,500	10,700
Raw materials and miscellaneous	12,250	14,550

The value of exports was about 13,808 million baht in 1967, increasing to 14,256 million baht in 1970. The principal exports were rice, rubber, tin, maize, kenaf and tapioca products. The value of rice exports, the most important export commodity, dropped throughout the Second Plan period.

During the Third Plan, the value of exports is expected to increase at a rate of about 7 per cent per annum. The value of major exports has been estimated as follows :—

TABLE 10-2
Export Targets

Products	Unit	1972	1976
Agricultural products	million baht	11,000	13,670
Fishery ,,	,,	390	600
Forestry ,,	,,	255	275
Mineral ,,	,,	2,040	2,360
Industrial ,,	,,	1,445	2,720
Miscellaneous	,,	2,245	3,816
Total		17,355	22,941
Rice	Thousand Tons	1,300	1,500
Rubber	,,	315	383
Tin	,,	23	26
Kenaf	,,	350	300
Maize	,,	2,000	3,000
Livestock	Thousand Livestocks	40	50
Shrimp	Thousand Tons	10	14
Sugar	,,	120	200
Silk	Hundred Yards	10,360	15,616
Tapioca Products	Thousand Tons	1,400	1,800
Fluorite	,,	450	600
Canned fruit	Thousand Boxes	2,200	5,000
Cement	Thousand Tons	400	400
Thread	,,	2.5	15
Materials	Million Yards	10	16
Ready made dresses	Thousand Dozen	400	800
Gunny bags	Million Bags	25	25
Watch-parts	Thousand Pieces	900	1,500
Watch-boxes	,,	500	2,500
Dregs	Thousand Tons	26	170

Rice. — Rice is and will continue to be the mainstay of the domestic market and a major earner of foreign exchange. The declining export demand in the past few years is, therefore, a matter requiring urgent attention. There is some possibility of increasing exports of rice to Africa and the Middle East, depending, of course, on price developments there. Close attention will be given to maintaining present markets in Malaysia, Singapore and Hong Kong. There is little expectation of sales higher than in 1969 in other parts of Asia, but there may be some increase in shipments to Europe.

From these tentative market expectations a rice export target of 1.5 million tons has been established for 1976, distributed as follows :

TABLE 10-3
Rice Exports
(Thousands Tons)

	1969 (Actual)	1976 (Target)
Malaysia, Hong Kong and Singapore	460	600
Other markets in Asia	320	300
European Markets	20	100
African Markets	140	250
Middle East	80	150
New Markets	—	150
Total	1,020	1,500

Rubber. — Thailand exported 276,000 tons of rubber in 1969, compared with 187,000 tons in 1963. The important markets for Thai rubber are the U.S.A., England, West Germany, Italy and Japan Sales to Japan have shown the largest gain. In 1965 Japan bought 54,178 tons, which was about 26 per cent of the total. In 1969 Japan bought 101,838 tons or 37 per cent of the total. To meet the increasing demand, production of rubber rose from 198,000 tons in 1963 to 282,000 tons in 1969, an average annual increase of 6.3 per cent. In 1976 it is expected that Thailand will produce about 397,000 tons, as a combined result of more rubber trees and the substitution of high - yield for low - yield trees. It has been estimated that rubber exports will be not less than 383,000 tons in 1976.

Tapioca Products. — In 1963 Thailand exported only about 427,000 tons of tapioca products, but by 1970 this figure had risen to 1,300,000 tons, an increase of 20 per cent per year. The important markets for tapioca are West Germany, the Netherlands, the U.S.A., Japan and Belgium. The Netherlands and West Germany show the greatest increase in imports of tapioca from Thailand. In 1967 the Netherlands bought 253,385 tons, or 32 per cent of tapioca exports. In 1969 export sales to this country rose to 581,979 tons, or about 60 per cent of the total. It is expected that tapioca exports will rise to 1,800,000 tons in 1976, as compared to 1,300,000 tons in 1970.

Kenaf. — Thailand exported 483,300 tons of kenaf in 1966, but from that year on exports decreased, to about 256,000 tons in 1969. The reasons were the fluctuating price of kenaf and a sharp drop in demand for low quality kenaf. By 1976 it is expected that 450,000 tons of kenaf will be produced, an annual increase of 0.5 per cent. Assuming that consumption of kenaf in gunnybag factories is about 70,000 - 80,000 tons, Thailand will have close to 300,000 tons available for export. The important markets for Thai kenaf are Japan, England, Belgium, France, West Germany and Italy. Japan has being increasing its imports of kenaf from 13,523 tons in 1960 to 73,377 tons in 1969.

Maize. — Since good quality seed, land suitable for growing maize, and expanding markets are all available, production of maize will increase substantially during the Third Plan period. The production target for 1976 is 3.5 million tons. Of this amount it is expected that one - half million tons will be for domestic use, leaving three million tons for export.

The major export markets will continue to be Japan and Taipei. Part of the export demand will come from an anticipated 10 per cent annual increase in livestock raising in these countries. The present and expected distribution of export are as follows :—

TABLE 10-4

Maize Exports

(Thousands Tons)

	1969 (actual)	1971 (estimate)	1976 (target)
Japan	490	1,000	1,500
Taipei	450	400	800
Other	540	400	700
Total	1,480	1,800	3,000

Shrimp. — The export target for 1976 is 14,000 tons, about double the present total. World demand for shrimp has been increasing at 10 per cent per year and is expected to continue to grow at this rate. Exports from Thailand are expected to supply an increasing proportion of this demand. The major buyer will be Japan, which currently accounts for three - fifths of the total. Other important markets are the United States, Hong Kong, Malaysia and Europe.

Tin. — Exports of tin decreased by 7 per cent between 1969 and 1970, to 21,800 tons from 23,400 tons, as a result of a generally lower demand in world markets. Since the market prospects for tin are somewhat uncertain, a modest increase to 26,000 has been established as the target for 1976.

Sugar. — As a member of the International Sugar Organization Thailand has had an annual export quota of 50,000 tons of sugar. But in 1971 the amount of sugar available for export was 200,000 tons. Since it is very difficult to obtain a higher export quota, the Government decided to resign from membership in the International Sugar Organization in the expectation that sugar could be sold to countries that do not belong to the ISO.

It is estimated that output will expand to 600,000 tons in 1976, and that domestic demand will grow to 400,000 tons, The remainder is expected to find a ready market abroad, because production costs in Thailand are relatively low.

Silk. — The production of silk for export will be accelerated because of the high overseas demand. According to the projected schedule production will increase at a rate of just over 10 per cent per year. Exports are expected to be 1,036,000 yards in 1972 and 1,561,600 yards in 1976.

Fluorite. — Thailand exported about 350,000 tons of fluorite in 1970 compared to 15,900 tons in 1963. The main market for Thai fluorite is Japan, and in this and other markets the prospects of higher sales are bright. The export target is set at 600,000 tons in 1976, representing an increase of 10 per cent per year. To meet this target it will be necessary to make early plans to improve transportation and upgrade the ore.

Canned Fruit. — Canned fruit has been produced for export since 1967. In 1970 there were two canned fruit factories in operation with a production capacity of 125,000 tons a year, or 2,270,000 boxes. The production capacity in the Third Plan will be increased to 312,000 tons in 1976. Thailand exported about 800,000 boxes of canned fruit in 1970, valued at 60 million baht. It is estimated that exports will be 5 million boxes, with a value of 350 million baht, in 1976. The important markets are the U.S.A., the European Common Market and Japan.

Cement. — In 1970 there were four cement factories, with a production capacity of 2,625,000 tons a year. In 1972 three new factories will be completed, and these seven cement factories will have a total production capacity greater than domestic demand. Thailand exported about 156,000 tons of cement with a value of 80 million baht in 1970. Cement available for export in 1976 will amount to 400,000 tons. The prospective markets are Laos, Vietnam, Cambodia and Indonesia.

Cotton Thread. — The production of cotton thread in excess of demand by domestic industries is sold abroad. In 1972 the export of cotton thread is expected to be about 2,500 tons, with a value of 50 million baht. The target for 1976 is 15,000 tons with a value of 120 million baht.

The largest markets for cotton thread are Indonesia and neighbouring countries in Asia. Export prospects are good because many countries in Asia are developing their own weaving industries. While these countries may impose general restrictions on imported materials, cotton thread is likely to be exempt.

Cotton Yard Goods. — Production of cloth in Thailand now exceeds domestic demand. The amount available for export is expected to be 10 million yards (worth about 50 million baht) in 1972 and 16 million yards (180 million baht) in 1976. Prospective markets are Europe, England, the U.S.A. and Japan, because wages and other production costs in these areas appear to be rising more rapidly than in Thailand.

Ready Made Dresses. — A manufacturer started producing ready made dresses for export in 1970 at a rate of 300,000 dozen per year. Output in 1976 is expected to increase to full capacity, about 800,000 dozen valued at 190 million baht. There is a strong demand for this product in the U.S.A. , Canada and Europe. At the moment, however, import restrictions in the United States is limiting sales in that market.

Gunny Bags. — In 1970, there were 10 gunny bag factories with a total production capacity of 60 million bags per annum. During 1972 - 1976, production capacity will remain at the same level because the demand for gunny bags is not increasing. Future export promotion will concentrate on gunny bags and other kinds of kenaf production, e.g. hessian. The important markets are Indonesia and countries in Africa and Europe.

Watch - Parts. — One watch - parts factory which started operating in 1968 now produces about 1 million pieces a year, entirely for export. Production capacity will increase to about 1,500,000 watch - parts in 1976. In 1970 Thailand exported about 300,000 watch - parts with a value of 15 million baht. It has been estimated that exports will rise to about 1,500,000 pieces with a value of 75 million baht in 1976. Of these exports about 90 per cent will go to Switzerland and the remainder to the U.S.A. and Japan.

Watch-Boxes. — There is one factory, established in 1964, which also produces only for export. In 1970 this factory exported 200,000 boxes, worth 3 million baht. It is estimated that production will increase to 2.5 million boxes in 1976, with an export value of 40 million baht. Switzerland will likely buy 60 per cent of this output, with other parts of Europe, the U.S.A., Japan and Hong Kong absorbing the remainder.

Vegetable Oil Meal (Soy bean). — This is a by - product of the vegetable oil industry. In 1970 Thailand produced about 19,000 tons of meal, and production will increase during the period 1972 - 1976 because of accelerated soy bean production. It is expected that production will amount to about 195,000 tons in 1976. In 1969 Thailand exported about 9,000 tons with a value of 19 million baht. The target is to export about 170,000 tons of meal valued at 340 million baht, in 1976. The important markets are Singapore, Malaysia, Taiwan and Japan.

Development of Commerce

In order to increase production for export improve the efficiency of the local marketing and supervise the activities of middlemen, the Government will :

1. Improve coordination in marketing and production.

The products included in the accelerated development plan of the agricultural sector are maize, soy bean, mulbery and silk, coconut, shrimp and cattle. There will be improvements in the marketing system to coincide with increased production, and at the same time the principal export products will be improved to meet the requirements of the world market. The major developments are :—

a) Maize. — Marketing through cooperatives will be encouraged to increase the profits of producers. The Government will try to combine agricultural credit cooperatives with selling cooperatives. The project which has first priority is the warehouses and silos of cooperative societies for buying and selling. The objective is to improve the bargaining position of these societies.

b) Soy bean. — In order to increase production for export this product needs special attention. Because soy bean is an important raw material for vegetable oil factories, marketing agencies should develop a guaranteed floor price.

c) Mulbery and Silk. — There are ready markets for these products. The important measures for marketing are to maintain quality and to improve the efficiency of selling methods.

d) Cattle. — The Government will promote both state and private enterprises raising cattle. It will encourage cattle producers to form cooperatives in order to develop selling policies more beneficial to producers. It will also encourage the export of beef in processed from and, to further encourage beef exports, will establish a disease - free zone in the South.

e) Shrimp. — There is a large and profitable export market for shrimp. Standardization and improvements in size and quality are problems to be solved.

f) Rice. — To improve markets at farmer level the Government will support cooperatives and agricultural institutions in their efforts to set up their own warehouses. The Government will also search for new export markets for rice of various kinds and will make use of new marketing measures such as selling on credit.

g) Rubber. — The Government will support measures to improve marketing, improve quality, maintain standards, promote industries using rubber as raw material and improve transportation facilities.

h) Fluorite. — There is a very urgent need to increase fluorite production because of increasing demand in foreign countries. The problem lies in transporting fluorite from mines to the Port of Bangkok. Services to facilitate exports will be encouraged

2. Improve local marketing system

Local marketing systems are a critical problem. Farmers do not have full information on where to sell their products, and therefore frequently sell at an unduly low price. The following local market development programmes will be undertaken during the Third Plan :

a) Encourage the establishment of agricultural cooperatives and similar institutions and assist them to establish such marketing services as silos, warehouses and marketing credit. Provide marketing information so that these institutions can obtain the best prices for their products.

b) Encourage improvements in quality and standardization.

c) Support the establishment of marketing centres for particular commodities such as, for example, the kenaf market in the Northeast, the maize market in the Central Region and the rubber market in the South.

d) Provide guaranteed prices and marketing boards for some agricultural products.

e) Study and improve administration in commercial state enterprises and enterprises under the Government's supervision.

f) Control monopolies and establish collective trading groups for the benefit of both producers and consumers.

3. Promote export markets

To expand export markets, the Government will take the following action :

a) Search systematically for markets abroad by using Government and private trade commissioners more effectively. Provide trade display centres and improved product information.

b) Encourage exporters to join together to fight cut - price competition, and increase their bargaining power with buyers abroad.

c) Provide targets for exports to various countries, and design measures to achieve them.

d) Negotiate long - term buying and selling contracts for some products such as rice and sugar.

4. Restraining price increases

During this Plan period it is expected that the price level of basic products will increase. The Government will initiate measures to prevent unreasonable price increases by improving the marketing system in areas of concentrated population, but will control prices only when necessary.

5. Encourage more Thai nationals to paticipate in commerce

The Government will expand commercial credit to Thai nationals, and continue its training and demonstrations in production, management, accounting and marketing. The Government will encourage wholesalers and retailers to form associations for cooperation and mutual aid. Special aid to Thai wholesalers will be provided extension of credit.

6. Education and marketing research

In this field the Government will carry out research on markets for agricultural and industrial products with a view to improving marketing efficiency, and improve administration in some departments of the Ministry of Economic Affairs, particularly the work of the Ministry in the provinces. Follow - up regional trade movements and advice to sellers at the agricultural level.

7. Improve standards for export products

The Government will revise regulations and laws to make them more practical. In establishing standards there will be close consultation with production and selling groups.

Service

Service industries play an important role in helping to offset the trade deficit. During the years 1967 - 1970, Thailand had net income from service industries of 23,300 million baht. The extent to which this influenced the balance of payments is shown below.

TABLE 10 - 5

(million baht)

Item	1967	1968	1969	1970
Receipts	8,434.4	9,249.7	9,284.4	9,513.1
Payments	—2,521.3	—3,061.4	—3,430.9	—4,058.6
Net Services	5,913.1	6,188.3	5,853.5	5,454.5
Trade deficit	—8,150.2	—10,650.0	—11,297.7	—12,258.0
Net tråde and Services deficit	—2,237.1	—4,461.7	—5,444.2	—6,083.6

Source : Bank of Thailand

Insurance

Apart from its role in protecting the public against loss, insurance is an important instrument of saving and investment. It also has an important role in international trade, both export and import. For these reasons, the Government plans to develop the insurance business so that it can exercise a stabilizing influence on the country and to participate in its development.

TABLE 10-6

Progress in the Insurance Industry

	1967	1971
1. **Number of Insurance Companies(1)**		
A. Life	11	11
B. Damage	49	55
C. Branches of Life Insurance Companies and Damage Insurance Companies	130	130
2. **Capital of Insurance Companies** (Domestic)		
A. Registered Capital (Million)	290.9	324.2
B. Paid Capital ,,	189.2	250.6
3. **Assets of Insurance Companies** (2)	1,149.8	1,818.6
A. Capital Assets(2) (Million Baht)	673.6	1,379.2
B. Others Assets (2) ,,	476.3	439.4
4. **Reserve Capital**	677.0	973.7
A. Life ,,	579.9	873.5
B. Damage ,,	97.1	100.2
5. **Amount Insured** ,,	50,168.3	92,892.7
A. Life ,,	5,171.9	5,657.8
B. Damage ,,	44,996.4	87,234.8
6. **Premium** ,,	691.5	899.2
A. Life ,,	276.9	318.7
B. Damage ,,	414.7	580.4

(1) At August, 1971

(2) Estimated on the basis of assets in 1967, 1968 and 1969,

Source : The Ministry of Economic Affairs

It can be seen that the position of the insurance companies at present is more stable than it was in the past. Capital of the companies has increased; assets in 1971 were 58 per cent higher than in 1967; reserve capital in 1971 was 43 per cent higher than in 1967; total premiums in 1971 were 899.2 million baht, compared to 691.5 million baht in 1967, an increase of about 10 per cent per year. Car insurance increased very quickly, especially third party liability, followed by fire insurance and sea insurance. Life insurance increased by only about 3 per cent per year.

TABLE 10 - 7

Estimated Growth of Insurance 1971—76

(million baht)

	1971	1976
Premiums	899	1,250
Life	319	380
Damage	580	870
Reserve Capital	973	1,185
Life	873	1,035
Damage	100	150
Assets	1,818	2,000
Capital Assets	1,379	1,550
Other Assets	439	450

Tourism

Tourism has become a major national industry during the past decade. It is important to the economy in at least three aspects: it is a source of employment, a source of income to workers, employers and the Government, and it focusses world attention on the country. In 1970 some 629,000 tourists came to Thailand. On average, they stayed 4.8 days and spent $28, for a total of $90 million.

Tourism promotion can therefore have a high rate of return. The objective is, of course, to make Thailand a desirable destination. To achieve the objective requires a stable, secure atmosphere, further development of tourist attractions and effective advertising abroad.

During the Third Plan the target is to raise the number of tourists to 660,000 in 1972 and to one million in 1976. To achieve this target the Government will encourage its agencies and the private sector to develop more tourist resources, maintain the Thai tradition of smiling hospitality, and improve accommodation, food and other services. Private firms will be encouraged to expand their advertising programmes.

The responsibility for tourism promotion rests with the Tourist Organization of Thailand. This organization was established in 1960 and now has five offices in Thailand, one in New York and one in Los Angeles. Tourism promotion projects for the Third Plan are as follows :

1. To study, develop and articulate without delay principles of tourism promotion.
2. To coordinate the development and promotion of tourism attractions. This will require a survey of tourism resources and the selection of specific attractions for detailed investigation and project planning.
3. To improve services, particularly to simplify unnecessarily time - consuming tourist regulations, and improve hotel services.
4. To ensure that tourists enjoy adequate security.
5. To improve the effectiveness of Government tourism advertising and support the promotional efforts of individuals, the Hotel Association and the Tourist Services Association.

Government Enterprises

In this Plan the Government will not establish any new state enterprises for commerce and services. The Government's policy is not to compete with the private sector, and to maintain the principle of a free trade system. The Government will, however, improve those state enterprises which are of benefit to commerce and services.

Warehouse Organization. — The Government's policy is to transfer unused rice warehouses belonging to the Warehouse Organization to Cooperatives. The Warehouse Organization will expand purchasing, at guaranteed prices, of agricultural crops from farmers, and will search for markets for crops that are being promoted during the Third Plan.

Companies belonging to Ministry of Economic Affairs. — These are the Thai Jute Co. Ltd., Thai Product Marketing Co. Ltd., Pued Kasikam Co, Ltd., and Provincial Co, Ltd. Objectives and policies of these companies are also to find markets for crops which are being given special emphasis. The Government will encourage these companies to widen the range of their activities by acting as selling agent for farmers and cooperatives in the district and also by acting as the Government agent in price support programmes.

These services to farmers will be improved during the Third Plan by encouraging private firms, or groups of dealers, to form companies with some Government involvement to operate as purchasing and price support agencies. These companies will not operate under the same kind of charter as the state enterprises.

marketing Organization. — A revision in objectives and administration is needed in the maintenance and development of market centres and the allocation of spaces for market gardeners to sell their produce.

Fuel Organization. — The Fuel Organization sells oil to the Government and the private sector, holds oil reserves for the country to use in emergencies, and for maintaining price stability.

Tourist Organization of Thailand. — Reference is made to the activities and targets of this Organization in the foregoing section.

United Thai Hotel and Tourist Co. Ltd. — This company is charged with management of the Erawan Hotel which now has 190 rooms. During the Third Plan period consideration will be given to the sale of this enterprise.

Budget

The development budget for commerce and services is 871 million baht during the Plan period, consisting of 170 million baht from Government budget and 701 million baht from the earnings of the Warehouse Organization, the Fuel Organization and the United Thai Hotel and Tourist Company.

TABLE 10 - 8

Development Budget for Commerce and Services

(million baht)

Source	1972	1973	1974	1975	1976	Total
Government Budget	30	35	35	35	35	170
Foreign Loans	—	—	—	—	—	—
Foreign Grants	—	—	—	—	—	—
Earning of Goverment Enterprises	116	126	136	152	171	701
Total	146	161	171	187	206	871

Development budget from the Government consists of 20 million baht during the five year period. In addition, there will be 10 million baht as a reserve budget for development projects and another 140 million baht as a reserve budget for the implementation of a basic plan for tourism when it is developed.

CHAPTER II

TRANSPORTATION AND COMMUNICATIONS

Progress of Work during the Second Plan

The main objectives during the Second Plan were to renovate and to improve the existing transportation and communications system and to expand the system as required by the economic development programmes of other Sectors.

Total planned investment expenditure for transportation and communications development programmes during the Second Plan added up to 18,565 million baht. However, total actual investment expenditure is estimated to be 16,100 million baht. The difference of 2,464 million baht is due to delays in project implementation caused by alterations of operation plans and targets, and the necessary elimination of some projects due to the limited implementing capacities of the agencies concerned.

The progress of the transportation and communications development programmes during the Second Plan can be summarized as follows :

Land transportation. The land transportation development programmes were concerned with the rehabilitation and construction of the National and Provincial highway systems. Implementation was scheduled to begin in 1965 and to end in 1971. The objectives were to construct and to repair 109 routes of the National highway system, with an overall length of 8,063 kilometres; and 120 routes of the Provincial highway system, with an overall length of 4,169 kilometres (including the projects to be implemented by the Mechanical Equipment Centres). Therefore, the total length of the highways to be renovated and constructed was 12,232 kilometres.

There have been several alterations of the operation plan and targets of the highway development programme during the implementing stage because of revised cost estimates, actual construction time longer than anticipated and changes in Government policy. In addition, there also was more construction of roads not included in the plan than had been anticipated.

The actual progress of the highway development programme during the Second Plan is as follows:

1. Ninety - four routes of the National highway system, with an overall length of 5,778 kilometres have been constructed and repaired.

2. One hundred and three routes of the Provincial highway system with an overall length of 3,018 kilometres have been constructed and repaired.

The total distance of highways completed is 8,796 kilometres, some 3,436 kilometres below the original target. However, to offset this deficiency the total length of unplanned roads completed during the same period was 5,778 kilometres. The construction of unplanned roads is approved by the Government on a yearly basis without advanced planning. Consequently, most of the existing unplanned roads are sub - standard and construction of such roads is responsible for delay in implementation of planned projects

Railroad. The objectives of the railroad development programme during the Second Plan were to acquire 84 diesel locomotives and accessories; 32 diesel railcars; to construct and to acquire 205 passenger coach bogies; to replace bridges; to replace and to weld rails on the Northern, Southern, and Northeastern Lines; to expand the marshalling yards and stations; to stabilize roadbeds; to procure concrete sleepers; to improve the efficiency of the Mae klong Line; and to survey for construction of new lines.

The majority of the objectives have been reached. However, implementation was delayed in some cases: acquisition of 84 diesel locomotives, only 30 units of which have been purchased by the end of the Second Plan; acquisition of the passenger coaches; replacement of bridges; expansion of the marshalling yards and stations; procurement of concrete sleepers; and replacement of rail. The major causes of the implementation delays can be traced to the time consuming processes of preparing the purchasing orders from abroad and lack of well - planned operations on the part of the State Railway of Thailand itself.

Waterways

1. The objectives of the waterways development programmes during the Second Plan were to acquire dredging and surveyor ships, to construct a breakwater at Songkhla, and to improve navigable channels leading to the ports of Songkhla, Phuket, Surat Thani, and Pattani. Most of the objectives have been reached. However, acquisition of 3 dredging and surveyor ships was delayed for one year due to tardiness in tender process. Consequently, some dredging projects were affected. In addition, the completion of the breakwater at Songkhla was also delayed because of the inexperience of the contractor. Nevertheless, there may be additional acquisition of 2 surveyor ships at the end of 1971.

2. As for the development programme of the Bangkok Port, there have been improvement and construction of godowns, open - storage areas, administrative buildings, and handling equipment. In addition, construction of 4 berths on the East side of the Port and 30 mid - stream dolphins was also started. Most of the objectives have been reached with the exception of the East Quay Project and the 30 Mid - stream Dolphins Construction Project. The implementation delays of the East Quay Project can be traced to problems of land acquisition and the implementation delay of the 30 mid - stream Dolphins Construction Project is due to problems in the design work. Consequently, the implementation of the two Projects will only commence in 1972.

3. During the Second Plan, the Netherlands Government had agreed to provide the technical assistance for the survey for the construction of the second deep - sea port. In this connexion, NEDECO was selected to perform the survey and design for the construction of the second deep - sea port at Laem Krabang, Si Racha. This survey and design work is to be completed by the end of 1971. Related to the possibility of having a second deep - sea port, the U.S. Government has agreed to provide technical assistance for a study on Sattahip Port.

Air. The objectives of the air transportation development programme during the Second Plan were to improve the quality of the aeronautical radio service and to improve as well as to construct domestic airports. In this connexion, surveys were conducted for construction of buildings and runways at the Chiang Rai airport, Tak airport, Khon Kaen airport, Nakhon Phanom airport, and Phrae airport, extension of runway at Phitsanulok airport, Sakon Nakhon airport, and Pattani airport; construction of taxiway at the Hua Hin airport; construction of runway at the Mae Hong Son airport, Trang airport, Tak airport, and Mae Sot airport. Survey and design work was also conducted for construction of the Loei airport. Most of the objectives have been reached. However, there are certain construction projects which will be continued during the Third Plan: such as the construction of Phrae airport, Tak airport, and Mae Sot airport.

As for the second international airport during the Second Plan the objective was to complete the survey for site selection and preparation of the master plan. In addition, 15,000 rais of land were to be acquired in preparation for the construction. However, only 10,850 rais have been acquired so far and the Government is still considering the offers of assistance from abroad for survey and design as well as details for tendering from the survey company. The remaining part of the programme will have to be continued during the Third Plan.

The Bangkok International Airport development programme during the Second Plan aimed at increasing its capacity to accomodate traffic volumes expected during the next ten years and to prepare for the coming of the jumbo - jet. In this connexion, there were to be improvements and construction of runways, taxiway, apron, custom building, and passenger terminal. The planned objectives have been reached, with the exception of the construction of the main building and the custom building which are expected to be completed in 1972.

The domestic air service development programme during the Second Plan was to replace the aging C - 47s by acquiring 7 prop - jets for the Thai Airways company so as to accomodate increased traffic. These objectives have been reached.

Communications. The objective of the metropolitan telephone service development programme was to increase the Bangkok - Thon Buri exchange capacity by 105,100 DELs during the Second Plan. This has been accomplished as planned. Consequently, the Bangkok - Thon Buri exchange capacity now is 162,000 DELs which is more than double the service available prior to 1967. However, implementation of the provincial telephone service development programme during the same period, which was to install automatic exchanges with a capacity of 35,800 DELs, was delayed for one year due to problems in obtaining a loan. Although most of the objectives will have been fulfilled by the end of the Second Plan, part of the programme will have to be continued past 1971. The uncompleted work is the installation of two automatic exchanges, each of which has a capacity of 800 DELs. After 1973 the provincial exchange capacity is expected to amount to 61,040 DELs.

The objective of the toll spur route service development programme was to link the remote areas with the developed areas through the microwave system on trunk routes. This has been accomplished as planned.

The construction of the microwave system on trunk routes in the North and the South in connexion with the national telecommunications system development programme initiated in the First Plan, has been completed during the Second Plan. Consequently, telecommunications service throughout the country can now be operated efficiently via the microwave system. In addition, construction of satellite ground stations with antennas facing both the Pacific and Indian Oceans have also been completed and these facilities are now in operation.

The problem of land acquisition has prevented completion of the postal and telegraphic service development programme with was concerned with the construction of 137 local service stations during the Second Plan. Only 88 such stations have been constructed and the rest will have to be continued during the Third Plan.

The television service development programme which was concerned with the construction of the transmiting and relay stations to make possible transmission from Bangkok to the North and the South via the microwave system as well as the television switching centre has not been implemented as planned, due to survey and design problems. Consequently, implementation of these programmes will be initiated during the Third Plan.

Policy Objectives of the Third Plan (1972 - 1976)

When the Second Plan comes to an end, most of the transportation and communications system development programme will have been completed. Therefore, the main objectives of transportation and communications system development during the Plan will concentrate on completion of the network to facilitate economic development of other sectors. Consequently, the country's economy development will progress at a faster pace.

Transportation and communications system development during the Third Plan will be along the following patterns :

1. The highway development programme will remain high on the priority list and will continue to receive a large share of the National Budget. However, emphasis will be placed on Provincial highway

development in order to provide easier access to the completed National highway network. In addition, emphasis will also be placed on improvement of the Bangkok - Thon Buri urban transportation system to help relieve the traffic congestion in the metropolitan are.

2. The inland waterways development programme will receive more attention than before. Implementation during the Plan will be concerned with the survey and dredging of the main waterways to promote water transport and to effect better coordination between water and other modes of transportation.

3. The railroad development programme will continue to place emphasis on improvement of existing services. In addition, support will be given to improvement of the railroad services in the urban area. However, construction of new lines will be limited to lines that either yield the highest economic return or ones that are dictated by Government policy.

4. There will be economic feasibility surveys for improvement and construction of deep-sea ports in the East and the South. If the surveys show favourable results, construction and improvement work on the aforementioned ports may begin in the last stage of the Plan. As for the coastal port development programme, emphasis will be placed on dredging navigable channels leading to the main coastal and fishing ports.

5. The international airport development programme will be concerned with a survey for the improvement of service efficiency and capacity to accomodate future traffic. Consideration will also be given to survey and design for construction of the second international airport. The actual construction, however, will start only when the traffic situation at the existing international airport makes it necessary. As for the domestic airport development programme, improvement work on the existing airports will be accelerated. However, construction of new airports will be limited in number. In addition, there will be improvement of aeronautical radio service and flight control.

6. The air service development programme will be concerned with improvement of service, both national and international which, will be accomplished by acquisition of an adequate number of modern aircraft.

7. The merchant marine development programme will be directed towards more stability for private Thai Shipping Companies. However, investment to improve the services of the State-owned shipping company will be approved only after a careful study of economic aspects shows favourable results.

8. The communications and telecommunication development programmes will concentrate on improvement of services to meet the demand and better coordination among various operating agencies to avoid duplication of work.

The television expansion programme will be implemented in such a way that the Army's television development programme and the Public Relations Department's television development programme will be synchronized to prevent duplication and to obtain an optimum return on investment.

9. The transport administration development programme will be concerned with survey of infra-structure of transport organizations to improve efficiency and coordination among different modes of transport, as well as coordination between freight forwarders and exporters.

Investment Expenditures

Total investment expenditure to carry out economic development programmes in the field of transportation and communications, in accordance with the aforementioned policy objectives during the Plan, is established at 24,183.06 million baht which will be financed as follows: 15,262.03 million baht from the National Budget; 5,614.36 million baht from foreign loans; 242.98 million baht from foreign grant assistance; and 3,063.69 million baht from State enterprises' retained earnings. Out of the total investment expenditure of 24,183.06 million baht, 18,633.05 million baht will be allocated for land transportation development programmes, 895.48 million baht for waterways development programmes, 815.69 million baht for air transportation development programmes and 3,838.84 million baht for communications development programmes. The break down of investment expenditure is as follows.

TABLE 11 - 1

Third Plan Development Expenditures for Transportation and Communication

(million baht)

Project	Investment Expenditure 1972 - 1976					Remarks
	National Budget	Loan	Grant	Retained Earning	Total	
1. Land Transport						
1.1 Construct and rehabilitate National highway system	6,657.98	1,529.32	193.90	—	8,381.20	
1.2 Construct and rehabilitate Provincial highway system	6,050.10	605.10	—	—	6,655.20	
1.3 Tertiary road system	1,230.59	—	—	—	1,230.59	
1.4 Railroad Development	351.813	1,113.445	—	467.735	1,932.993	
1.5 Acquire bus and truck	—	—	—	352.18	352.18	
1.6 Others	58.42	—	22.47	—	80.89	
Sub - Total	14,348.903	3,247.865	216.37	819.915	18,633.053	
2. Waterways						
2.1 Port survey	1.835	1.65	5.80	—	9.285	
2.2 Coastal port development	37.80	42.50	—	—	80.30	
2.3 Aids to navigation development	60.19	—	—	—	60.19	
2.4 Bangkok Port development	—	260.00	—	410.00	670.00	
2.5 Others	38.30	33.00	4.40	—	75.7	
Sub - Total	138.125	337.15	10.20	410.00	895.475	
3. Air						
3.1 Airport development	258.31	—	—	—	258.31	
3.2 Aeronautical radio service	80.58	64.00	—	—	144.58	
3.3 International air service development	70.00	86.00	—	76.00	232.00	
3.4 Others	89.39	—	16.41	75.00	180.80	
Sub - Total	498.28	150.00	16.41	151.00	815.69	
4. Communications						
4.1 Telephone service development	1.29	1,670.73	—	1,682.77	3,354.79	
4.2 Postal and telegraphic service development	198.80	—	—	—	198.80	
4.3 Television development	68.71	208.62	—	—	277.33	
4.4 Ist Stage Maritime Mobile service development	7.92	—	—	—	7.92	
Sub - Total	276.72	1,879.35	—	1,682.77	3,838.84	
TOTAL	15,262.028	5,614.365	242.980	2,770.705	24,183.058	

Note :

(1) The development budget appropriation for the Transportation and Communications Sector during the Plan period is expected to be 20,112 million baht. This figure is lower than the budget based on the proposed projects. Therefore, the projects will be revised annually according to their priorities and the availability of allocated budget (detail of project priority appears in an annex).

(2) The amount of estimated financial grant is 450 million baht which is higher than the amount contained in the Sector's Plan because the Sector places only the most favourable projects in the Plan.

(3) The total National Budget in the Sector's Plan includes the Post and Telegraph Department's budget which will be paid from the Department's fund.

The underlying reasons for such a large portion of the total investment expenditure being allocated to land transportation development programmes are that the land transportation system plays a vital role in the development of the country's economy and, hence, road and railroad development programmes should be implemented during the Plan to complete an integrated national transport system. Furthermore, development programmes that require sizable investment expenditure in other systems will not be ready for implementation during the Plan. The size of investment expenditure allocated to the communications system development programmes ranks second because there will be an acceleration of implementation of the telephone service expansion programme and the television transmission via microwave system expansion programme during the Plan period.

Strategy. If the State cannot finance all of the economic development programmes contained in the Plan, there will certainly be reductions of size and target of the programmes planned. In this connexion criteria must be established to facilitate the process of such consideration in order to minimize the adverse effects on the principal objectives of the Transportation and Communications Sectors development programmes. Accordingly, the project priorities have been established based on the following criteria :

— **Priority 1** — Projects that have been contracted for, projects that are dictated by Government policy, and projects that have high economic returns.

— **Priority 2** — Projects that have lesser economic returns and projects that are currently going on, interruption of which would be detrimental economically.

— **Priority 3** — Projects that have low degree of economic returns and projects that are supported for reasons other than economic ones.

— **Priority 4** — Projects that are not ready for implementation, initiation of which would be a financial burden to the Government, and projects that either have the least economic returns or none at all.

Specifically, the highway development projects priorities are established on the following criteria:

— **Priority 1** — Projects that have been contracted for, projects approved by the Cabinet, and projects that are to be constructed by the Mechnical Equipment Centres.

— **Priority 2** — Projects that have high economic returns and projects that will help relieve the traffic congestion.

— **Priority 3** — Projects that are strategic or urgent in nature.

— **Priority 4** — Projects that do not meet the above conditions with an overall annual investment expenditures estimated at 70 million baht during the Plan.

Based on the above information the transportation and communications development projects to be implemented during the Plan can be grouped according to their priorities as follows :

— **Priority 1** — 86 projects, with an overall investment expenditure estimated at 10,993.97 million baht; 5,036.35 million baht of which will come from the National Budget; 3,565.82 million baht from loans; 237.36 million baht from foreign financial assistance; and 2,154.44 million baht from state enterprises' retained earnings.

— **Priority 2** — 49 projects with an overall investment expenditure estimated at 7,761.01 million baht; 5,093.22 million baht of which will come from the National Budget; 1.41 million baht from foreign financial assistance; 1,998.64 million baht from foreign loans; and 667.74 million baht from state enterprises' retained earnings.

— **Priority 3** — 23 projects with an overall investment expenditure estimated at 3,153.53 million baht; 2,922.91 million bath of which will come from the National Budget; 49.90 million baht from foreign loans; 4.21 million baht from foreign financial assistance; and 176.51 million baht from state enterprises' retained earnings.

— **Priority 4** — 10 projects with an overall investment expenditure estimated at 2,274.55 million baht; 2,209.55 million baht of which will come from the National Budget and 65.00 million baht from state enterprises' retained earnings.

In addition to the established project priorities mentioned earlier, the transportation and communications development programmes during the Plan should be patterned as follows:

(1) The size of the non-planned project expenditures should be kept to a minimum, since this type of project is not well planned, yields unsatisfactory results, and thwarts implementation of the planned projects.

(2) In is noted that there are many agencies responsible for the construction of the provincial highway system and the tertiary road system. However, only the Thai Highways Department (hereinafter referred to as THD) has the capacity to maintain roads in good condition. Thus, it should be established in principle that THD is repsonsible for maintaining roads that have been completed by other agencies. Meanwhile, other agencies should upgrade their road construction to THD's standards to facilitate the process of transferring road title to THD after completion of their work.

(3) The economic development programme of the State Railways of Thailand in connexion with the improvement of services and facilities of the lines already in operation, will be high on the priority list. However, the construction of new lines will be approved only when dictated by Government policy. Nevertheless, improvement of service in the urban area will be encouraged as a solution to metropolitan traffic problems.

(4) At present, road transport services still face many problems and bottlenecks :

(a) The trucking industry consists of many small competing operators. This results in many irregularities in operation which inevitably contribute to a high rate of accident, equipment depreciation, overloading, and bankruptcy.

(b) Similarily, bus services up-country, both within and between Changwats, are provided by many small operators. Most of the bus operators join together in the same company but operate independently; consequently, poor service and a financially unstable situation also exist in the bus industry. As for the Bangkok-Thon Buri area, there are 27 operating bus companies. None of these companies has a fleet of adequate size to provide efficient service, the result of which can be seen by the frequent use of run-down equipment. To further aggravate the problem, the companies often provide duplicate services on the same routes.

In view of this situation the aim of the road transport service development programme during the Plan will be to promote larger operations in the trucking and bus services, to support modification of regulations and rerouting of the road transport services, and to support improved measures and methods of control for bus and truck operators. As for bus service in the metropolitan area, the number of operating companies will be reduced to a few larger companies to improve service, efficiency, and future expansion.

(5) The State-owned truck and bus companies will continue to play an important role. However, the number of independent operators attached to the companies will be reduced. Otherwise, the State-owned companies will be replaced by private enterprises.

(6) Merchant marine development programme :

(a) The infra-structure of the merchant marine in Thailand will be strengthened gradually to improve service, and to promote expansion via careful long-range development planning. In this connexion, only new shipping routes for which careful survey indicate favourable prospects will be opened. In addition establishment of financially stable Thai owned shipping companies will be encouraged.

(b) At present, there are three lines, state and privately owned, in Thailand, operating between Thailand and Japan. However, this shipping route is under control of the Thai-Japan and Japan-Thailand Freight Conferences. The Thai lines, thus, become members of the Conferences. Past experience indicates that the Thai lines' share of outgoing cargo is satisfactory: however, the Thai lines' share of incoming cargo has not been adequate due to the following obstacles :

— The number of sailings of Thai ships from Japan to Thailand is limited while those of other member lines of the Conferences are not.

— The annual number of sailing from Japan to Thailand is 420, of which only 72 by Thai lines. In other words, the Thai lines' share of total sailing is only 17 per cent.

— The Conference has proposed to increase the annual number of sailing of the Thai lines to 90 in 1972 and 108 in 1973. However, the Conference also proposed that the Thai lines' share of pool cargo, which has a high freight rate, cannot exceed 0.25 per cent per sailing; any excessive revenue of the Thai lines earned from such an arrangement must be shared by other member lines.

Being an exporting country, Thai lines will be promoted to carry the maximum amount of incoming cargo from Japan via the following measures :

— Support the Thai lines in negotiation with the Japan-Thailand Freight Conference for more sailings from Japan for the Thai lines in accordance with the projected increment of Thai vessels.

— Prevent the Conference from imposing conditions restricting a high-level of earnings for the Thai lines.

— Encourage the importers, who are bringing cargo from Japan to employ the services of Thai vessels.

(c) The expansion of the State-owned shipping company will continue to be promoted so that it will become financially independent. The first stage of development will be concerned with service expansion on the existing Thailand-Japan route. When this effort succeeds, development will be concentrated on service expansion on other routes. This effort will involve detailed study of the situation of the merchant marine on different shipping routes. Joint-venture investment with reputable foreign shipping companies will also be considered during the Plan.

(d) Seamanship training programmes will be provided on a larger scale than before. It will be accomplished through establishment of a training centre for seamen.

(e) The State will continue to provide coastal shipping services. However, the State-owned company will not be able to be self-supporting from revenue earned from such service. Therefore, during the Plan period, the question of whether the coastal shipping company should be merged with the international shipping company, which is also owned by the State, will be considered in an effort to reduce operating costs and to promote the complementary relationship of coastal and international shipping.

(7) The coastal port development programme will be based on sound economic survey in order to draw up a long-term development plan aimed at solving the existing problems and bottlenecks. It will involve detailed engineering studies on navigable channels, carried out jointly by the Harbour Department and the Asian Institute of Technology. In addition, there will be a survey for the construction of coastal ports which will be carried out either with this assistance or through direct employment of experts. Aside from this programme, there will be an improvement of the aids to navigation programme which the Hydrographic Department of the Royal Thai Navy will carry out outside the port areas and which the Harbour Department will implement within the port areas.

(8) Inland waterways development programme.

Inland waterways also play a vital role in the country's economic development. However, Thailand has not drawn up a development plan in this field due to lack of needed economic data and information. Thus, during the Plan period, an team of experts will be employed to conduct surveys on waterways in the Central and Northern Regions in order to draw up a development plan and a list of priority projects. The dredging programme may be implemented in the latter stage of the Plan. The purpose of the waterways development programme is not only to promote the role of water transport, it is also to facilitate, as well as to lower the cost of, transport of ores and agricultural products which are major export commodities.

(9) International port development programme :

(a) The site selection and scope of development work of the second deep - sea port, whether at Laem Krabang or at Sattahip, will be decided from comparison of the results of the Laem Krabang Port Survey and Design, which is currently being carried out, and of the Sattahip Port Study, which is to commence in the near future.

(b) During the Plan period four quays will be constructed at the Bangkok Port in addition to those constructed during the Second Plan. In addition, there will be improvement of facilities for international shipping to accomodate future exports, in accordance with an anticipated increment of major crops. Since most of the major crops for export are loaded at ports along the Chao Phraya River and most of the imports are unloaded at the Bangkok Port, improvement on shipping facilities along the River will be considered. In this connexion, the economic justification for the improvements will be considered by the agencies concerned. Furthermore, use of the Bangkok Port for export of industrial products will also be considered since such exports are expected to increase during the Plan period.

(10) Air transport development :

(a) There will not be any sizable investment in international airport development programmes during the Plan because most of the improvements on the Don Muang Airport have been carried out during the Second Plan. As for the second international airport, there might be additional acquisition of land at the present site pending the results of survey and design study to be carried out by a foreign expert team. This work is expected to be completed during the Plan, although actual construction of a second international airport is not expected to commence during the Plan. In addition, there will also be improvements of the Chiang Mai and Hat Yai airports to raise their status to international airports.

(b) The domestic airport development programme will be synchronized with the flight schedules and types of aeroplanes used by the Thai Airways Company. The development programme of the existing airports is high on the priority list. In addition, there may also be improvement work on some domestic airports in accordance with Government policy.

(c) The international services of Thai International Airways have been successful in the past and will continue to receive support. In this connexion, consideration will also be given to the possibility of expanding these services onto new routes if an evaluation of the long-term development programme of the Company shows favourable prospects. Furthermore, acquisition of aeroplanes of adequate size and appropriate type will be supported.

(d) The domestic air service will be promoted to cope with the rising demand.

(11) Transportation coordination development programme. The Transportation Coordination Study, Phase I, has been completed. However, the content of the Report consists mainly of a collection of transport data and identification of bottlenecks. Thus, the implementation of the Phase II Study is urgently required because the study will yield : recommendations on implementation of significant transport development projects; economic evaluation of transport development projects; and establishment of recommended projects priorities. Furthermore the Report will propose solutions for transportation coordination which will lead to optimum utilization in terms of economic efficiency of the existing transport infra-structure.

(12) Communications development programme :

(a) The communications development programmes which will be high on the priority list include the metropolitan telephone plant service expansion programme, the provincial telephone plant service expansion programme and the toll spur route expansion programme.

The metropolitan telephone plant service expansion programme will not only increase the exchange capacity and number of exchange to accomodate the demand, it will also extend the service coverage into urban area. In addition, the existing exchange system will be completely replaced by the cross-bar system. In this connexion, all tenders for the required equipment will be prepared at the same time to minimize the capital cost and the successful tenderer will be encouraged to establish manufacture of telephone equipment in Thailand.

The provincial telephone plant service expansion and the toll spur route expansion programmes will be concerned with the expansion of services in every changwat, to accommodate demand. In this connexion, communications links between various changwats and Bangkok will become more convenient.

(b) The post and telegraph service development programme will emphasize the postal service development in particular, since most of the improvements on the telegraph service have been completed during the Second Plan. The development work will be directed toward expansion of the local and metropolitan post and telegraph services and construction of District buildings.

(c) One of the important communications development programmes during the Plan will be concerned with expansion of the television network in the North and South to facilitate transmission via the microwave system from Bangkok to the two regions. As for transmission to the Northeast, the investment expenditure will come mainly from the military budget.

Targets for Transportation and Communications Sector during the Plan.

Targets for the transportation and communications Sector expected to be achieved during the Plan can be summarized as follows :

— to survey highways	1,162 kms.
— to repair and to construct National highways	5,974 kms.
— to repair and to construct Provincial highways	7,468 kms.
— to construct the tertiary road system, construction of which will be undertaken by agencies other than THD	12,200 kms.

— to acquire buses	550 units
— to acquire trucks	800 units
— to survey for construction of new railroad lines	829 kms.
— to construct freight coaches	712 bogies
— to construct passenger coaches	210 bogies
— passenger kilometre of the State Railways of Thailand	4,710 mil/kms.
— to acquire diesel locomotives	154 units
— to acquire diesel railcars	10 units
— Ton kilometre of the State Railways of Thailand	300 mil/kms.
— to improve and construct domestic airports	7 airports
— to survey an international airport	1 location
— passenger kilometre of Thai Airways Company	31.1 mil./kms.
— to acquire 1:8000 DWT ocean - going vessels	
— to construct 4 additional quays on the east of the Bangkok Port in order to increase freight handling capacity by	1,500,000 tons/year
— to Survey 3 deep - sea ports.	
— to survey and prepare master plan for	2 ports
— to dredge navigable channel leading to	4 ports
— to dredge channels in the Central basin	
— to construct local postal and telegraphic stations	100 stations
— to increase the Bangkok - Thon Buri telephone exchange capacity	219,700 DELs
— to increase the Provincial telephone exchange capacity	53,500 DELs
— to construct television station in various locations for the transmission via microwave system	17 stations

When the implementation of the transportation and communications development programmes during 1972 - 1976 have been completed, Thailand will have a reasonably complete transportation and communications system which will provide a foundation for effective development in other sectors :

(1) There will be many all - weather National highways of high standard opened up throughout the country. Hence, all regions will be linked together and there will be direct links between regions: for examples, the North will be linked with the Northeast and the South will be linked with the Central Plain and the East.

(2) The Provincial highway system will be expanded and the standards will be higher. It will provide more economic and convenient means of transporting farm products from remote areas to markets.

(3) The railroad services, both for passengers and freight, will be more efficient and the facilities available will be adequate to accommodate future traffic.

(4) The navigable channels leading to the important coastal and fishing ports will have been dredged, thereby providing better access for vessels.

(5) When the East Quay Project has been completed, the Bangkok Port's capacity will be increased so that it will operate without serious traffic congestion for 5 to 8 years.

(6) All domestic airports will be equipped with all - weather facilities.

(7) The Don Muang International Airport will be able to provide better service since the improvement programme will be completed during the Plan.

(8) The metropolitan and provincial telephone services will meet the demand and the toll spur route service coverage will be more comphehensive.

(9) Television transmission via microwave system from Bangkok to various regions will be made possible for the first time.

(10) It is expected that there will be more investment in the development programmes for water and air transportation than ever during the Fourth Plan since significant projects would be implemented, particularly, the Second Deep - Sea Port and the Second International Airport.

Selected Transportation and Communications Programmes during the Plan

1. Construction and Renovation of the National Highway System : Altogether 91 routes of the National Highway system with an overall length of 5,974.1 kms. will be repaired and constructed during the Plan: sixteen routes of 1,041 kms. in the North; thirty routes of 2,636.7 kms. in the Northeast; thirtyfive routes of 1,163.6 kms. in the Central Region and ten routes of 1,132.8 kms. in the South. In this connexion, projects with an overall length of 1,359 kms. will be continued into the Fourth Plan. Furthermore, during the Plan, there will be survey and design study for a total length of 462 kms.

2. Construction and Renovation of the Provincial Highway System : Altogether 245 routes of the Provincial Highway with an overall length of 7,467.6 kms. will be either constructed or repaired during the Plan. Seventy routes of 2,452.4 kms. in the North; fiftyeight routes of 1,558.5 kms. in the Northeast; seventyfive routes of 1,920.0 kms. in the Central Region and fortytwo routes of 1,536.7 kms. in the South. In this connexion, projects of 2,718.0 kms. will continue into the Fourth Plan. In addition, non - planned roads with an overall length of 1,000 kms. will be constructed. Furthermore, survey and design study for 700 kms. of Provincial highway will be conducted.

Provincial highway development will be planned to facilitate implementation of the development programmes of other sectors and to enhance the use of the completed National Highway system. There will also be construction of 12,200 kms. of the tertiary road system (local roads, rural roads, and roads along resevoirs).

3. Improvement and Expansion of Railroad Service : The objective of the programme is to improve the efficiency of the existing services to accommodate the growing demand. Portions of the programme to be implemented will continue to follow the pattern set in the Second Plan. In addition, the railroad services in the urban areas will be improved. In this connexion, the following projects will be implemented :

— acquisition of diesel locomotive	154 units
— acquisition of diesel railcars	10 units
— construction of passenger coaches	210 bogies
— construction of freight coaches	712 bogies
— expansion of marshalling yards and stations	
— replacement of 50lb/yard rail with 60lb/yard rail on the Eastern line and overall distance of 100 kms. and replacements of 60lb/yard rail with 80lb/yard rail on the Southern and Northeastern lines, and overall distance of 312 kms.	
— replacement of bridge to carry 15 ton axle load 103 locations	
— procurement of concrete sleepers	150,000 pieces
— welding of 70lb/yard on the Southern line an overall distance of	200 kms.
— improvement on Mae Klong Line for safe and efficient service.	

There will also be survey work conducted for construction of new lines during the Plan: such as, an engineering survey for the construction of Klongsipkao - Ban Pachi Line, an overall distance of 75 kms; an engineering survey for the construction of Bua Yai Roiet-Mukdaharn-Nakhon Phanom, an overall distance of 375 kms; engineering survey for the purpose of realignment of the Den Chai - Chiang Mai Line, an overall distance of 215 kms. and an economic survey on the Klongsipkao - Ban Pachi Line and the Chachoengsao - Sattahip line.

4. Transportation Coordination of Thailand Study Phase II. This is the continuation of the Phase I Study which has been completed during the Second Plan. The Phase II Study will provide: recommendations on implementation of important transport development projects, economic evaluation of transport development projects, and establishment of recommended projects priorities. In addition, the study will also suggest solutions to transportation coordination problems which will lead to optimum utilization, in terms of economic efficiency, of the existing transport infra-structure. The Study will be conducted by a foreign expert team.

5. Construction of Bus Terminal Programme. Seventeen bus terminals will be constructed at various locations, of which two will be first class terminals; five will be second class terminals; and ten will be third class terminals. Site selection for construction of the terminals will be considered in detail later. The objectives of the programme are to regulate operations of the bus services and to help relieve traffic congestion within the city limits.

6. Improvement of Inland Waterways Programme. There will be an economic and engineering feasibility study on improvement of the main waterways in the Central basin, which consists of Mae Klong River, Tachin River, Chao Phraya River, Bang Pakong River and certain waterways in the North, in order to determine what must be done so that they can be utilized safely in all seasons. When the study has been completed, a plan for improvement and dredging of important navigable channels will be drawn up in accordance with the recommendations of the report.

7. Significant Port Surveys. During the Plan, a survey on Sattahip Port will be conducted within the technical assistance programme of the United States of America. The purpose of the survey is to determine the extent to which Sattahip Port can be developed into a modern deep - sea port to cope with the growing volume of foreign trade. The survey will also investigate the possibility of using the Sattahip Port as a container port.

There will also be other port surveys during the Plan. The Japanese Government will provide technical assistance for the preliminary economic and engineering study on construction of Songkhla Port as a medium size port on the East coast of the Southern Region. The New Zealand Government will help the survey for construction of the Narathiwat Port, while the British Government will aid the survey for construction of the Phuket Port as a deep - sea port in the West. In addition, a survey and preparation of a master plan of the Kantang Port will be made possible by a loan from the Danish Government.

8. Coastal Ports Improvement Programme. There will be a survey of coastal ports, the results of which will be used in drawing up a plan for improvement and dredging of navigable channels leading to the coastal and fishing ports to provide the vessels all - weather access to the ports. The task will be implemented in the following stages :

— conduct an economic survey on 15 ports: Bang Pakong, Prasae, Chanthaburi, Trat, Samut Songkhram, Samut Sakhon, Pranburi, Ban Laem, Chumphon, Ranong, Takua Pa, Krabi, Phangnga, Satun and Tak Bai, The survey is expected to be implemented and completed in 1973.

— conduct an engineering survey of 10 ports: Trat, Samut Sakhon, Samut Songkhram, Chumphon, Ranong, Takua Pa, Satun, Ban Don, Pak Phanang, and Pattani. The survey will be carried out jointly by the Harbour Department and the Asian Institute of Technology.

— dredge navigable channels leading to 4 ports: Samut Sakhon, Chumphon, Satun and Pak Phanang. In this connexion, two additional dredging ships will be acquired.

9. Improvement of Handling Facilities and Expansion of Berths at Bankok Port Programme. Implementation of the East Quay Project and construction of the quay for ligthers, go - downs, open - space storage, road and rail network, and other related facilities will be implemented in order to increase the capacity of the Bangkok port to accomodate simultaneously 6 to 7 vessels of 10,000 DWT and 2 to 3 large ligthers. Consequently, the Port will be able to handle an additional 1.5 million ton of freight per year.

10. Aids to Navigation Programme. There will be improvement and installation of aids to navigation along the coast as well as along the channels leading to the ports, at the estuaries and at the ports themselves. The objective of this programme is to improve safety and convenience.

The programme will be carried out by the Harbour Department or the Hydrographic Department in those areas under their jurisdiction. The Harbour Department will be responsible for the work on navigable channels leading to the coastal ports : installation of marks along the navigable channels leading to the ports of Samut Sakhon, Chumphon, Lang Suan, Pak Phanang and Satun. The Hydrographic Department will be responsible for construction of 12 lighthouses near Chon Buri (1), Prachuap Khiri Khan, (3), Surat Thani (5), Satun (2), and Trang (1). In addition, the Hydrographic Department will also in 1973 construct a centre for repairing navigation aids.

11. International Airport Survey. A preliminary survey will be conducted to determine the extent of further improvements needed at the Don Muang Airport, as well as to determine whether there is a need for a second international airport. If the findings of the survey confirm such a need, a competent foreign engineering - consultant company will be selected to conduct an economic and engineering survey and to draw - up a master plan for construction of the second international airport at Nonggnuhao between 1972 - 1973. The project will be financed by the National Budget.

12. Domestic Airport Development Programme. The existing runways at various domestic airports will be replaced with the concrete or asphalt type of international standard, which can be utilized in all weather. This programme is a continuation of the effort initiated in the First Plan. In addition, there will be continuation of airport construction at Mae Sot, Tak, Phrae, Chiang Mai, Loei, Surat Thani, and Phuket.

13. Aeronautical Radio Service Development Programme. There will be improvements of the ground to air communications system and flight control to conform with international standards. The programme is a continuation of the effort initiated in the First Plan. The tasks to be implemented during the Plan are to improve aeronautical radio service at Chiang Mai, Tak, Hat Yai, and Surat Thani airports. Particularly, improvements of the aeronautical radio service and flight control at Chiang Mai and Hat Yai airports will be made to conform with international requirements to facilitate the international air traffic.

14. Expansion of Local Post and Telegraph Services Programme. Local post and telegraph service stations will be established at the rate of 20 stations per year, or a total of 100 stations during the Plan. The objective of the programme is to enable the Post and Telegraph Department itself to provide efficient service in remote areas, now operated by authorized agencies.

15. Extension of Mail Acceptance Project. Post and Telegraph stations in the Bangkok-Thon Buri area and in heavily populated areas in various changwats will be established at the rate of 4 stations per year or a total of 20 stations during the Plan.

16. Expansion of Postal and Telegraphic Service District Programme. There will be acquisition of land and contruction of 14 post and telegraph service district buildings to serve as mail distribution centres around the metropolitan area in accordance with the expansion of the metropolitan boundaries and population growth. However, during the Plan period, only ten such buildings are expected to be completed and ready for operation at Sukhumvit, Phasi Charoen, Klongchan, Nonthaburi, Samut Prakan, Bang Na, Don Muang, Rat Burana, Pak Kret and Bang Khun Thian. The remaining four are at Phra Pradaeng, Ram Indra, Bang Pu and Chorkaebua.

17. Expansion of Metropolitan Telephone Plant Services. The Bangkok - Thon Buri exchange capacity will be increased by 181,700 DELs. In this connexion, nine additional exchanges will be opened and two permanent exchanges will be constructed. In addition, the capacity of the 23 operating exchanges will be increased. Thus, when the programme is completed in 1976, there will be a total of 34 exchanges with a capacity of 348,000 DELs in the Bangkok - Thon Buri area.

18. Expansion of Provincial Telephone Plan Services. The capacity of the provincial telephone plant services will be increased to accommodate the future demand. The programme will be concerned with acquisition of land at 49 locations for construction of 80 exchange buildings, conversion of three existing exchange buildings, and installation of exchange equipment at 118 locations with a total capacity of 53,500 DELs. Consequently, there will be 154 provincial exchanges with a total capacity of 106,300 DELs in 1976.

19. Expansion of Toll Spur Route. The toll spur route service will be more efficient and completely linked via the use of the microwave truck route. The programme will include acquisition of land for construction of 33 telecommunications buildings, installation of the toll spur route equipment for new service to be provided and installation of telecommunications equipment at the operating 80 telecommunications buildings. In addition, there will be construction and installation of equipment related to television transmission from Bangkok to various changwats. When the above mentioned projects have been completed, communications via the toll spur route system to and from 154 exchanges in various changwats will be possible.

20. Expansion of Television Services. Seventeen television stations will be constructed in the North and the South in accordance with the results of the survey undertaken during the Second Plan. The television stations to be constructed will be at Narathiwat, Pattani, Yala, Thung Song, Ban Hui Luke, Trang, Phuket, Surat Thani, Nakhon Si Thammarat, Nakhon Sawan, Lop Buri, Phitsanulok, Den Chai, Pangpuay, Doi Khuntannoi, Ngao and Chiang Rai. In addition, the capacity of the Lampang transmitting station will be increased and the television switching centre in Bangkok will be expanded.

CHAPTER 12

POWER

Electric Energy Development under the First and Second Plans

Electric energy constitutes one of the most important and indispensable basic infra-structure facilities and is essential to rapid growth and diversified development of the economy, particularly industry, agro-industry, commerce, and services. During the First Plan period, policy objectives for the development of electric energy were :

(1) On the generating side high priority was given to the construction of a new and centralized generating system of large, efficient power plants, replacing the small and isolated diesel plants, most of which were obsolete and unable to meet demand. The principal underlying objective was to provide a sufficient and reliable supply of electric energy to cope with the ever increasing demand and to reduce gradually the rate structure in order to promote use.

(2) On the transmission and distribution side, the construction of new and integrated nation-wide networks, covering changwats and amphoes previously served by diesel plants, was of high priority. During the Second Plan period, additional construction of generating, transmissing, and distribution facilities as well as completion of those previously initiated was implemented in order to meet the high growth rate of demand for electric energy.

Important achievements during the ten years from 1961 - 1970 can be summarized as follows :

Progress in Plan Implementation

(1) The targets for construction of generating facilities, such as Bhumibol and Ubolratana Hydroelectric Power Plants, Krabi Thermal Plant in the South, North and South Bangkok Thermal Plants, were achieved, resulting in an increase of installed capacity from 269,880 kw. in 1961 to 1,169,000 kw. in 1971, of which approximately 38 per cent was hydroelectric, 44 per cent thermal and 18 per cent diesel and gas - turbine.

(2) The transmission system expansion included the construction of 68 substations of which 7, 40 and 21 were of 230 kv., 115 kv. and 69 kv. respectively, and the construction of 5,176 circuit - kilometres of high - tension transmission lines, comprising 1,691 circuit - kilometres of 230 kv, 2,648 circuit - kilometres of 115 kv. and 837 circuit - kilometres of 69 kv. lines, linking 51 changwats to the system.

(3) In the provincial areas distribution systems were revamped and expanded by the construction of 9,660 circuit - kilometres of 33,22 and 11 kv. high - tension distribution lines and 400/230 kv. low - tension distribution lines in 52 changwats. In the metropolitan area, covering 4 changwats, the construction of 33 substations of 115/24 kv. and 69/12 kv, and the construction of 8,206 circuit - kilometres of 69, 24 and 12 kv. high - tension distribution lines and 220 - 240 v. low - tension distributions lines were completed as planned.

(4) In addition, accelerated programmes for providing electricity to unelectrified areas beyond the reach of the above systems were carried out by installing small diesel generating units, totalling 5,525 kw. in capacity, in 221 locations.

TABLE 12-1
Electricity Requirements

	Power Demand (MW)						Energy Demand (DKWH)						
	whole country	rate of increase %	Provincial areas	rate of increase %	metropolitan area	rate of increase %	whole country	rate of increase %	per capita consumption (KWH)	provincial areas	rate of increase %	metropolitan area	rate of increase %
End of First Plan	347	37	114	56	233	29	1,367	39	41	294	47	1,073	37
End of Second Plan	968	23	369	27	599	21	4,237	26	109	1,237	35	3,000	23
End of Third Plan (estimated)	2,070	16	720	14	1,280	16	9,373	17	213	2,866	18	6,507	17

Remarks 1) Electricity requirement in provincial areas includes EGAT direct sales to industries.

2) Rate of increase represents annual average rate of increase during the Plan period except for End of First Plan which uses rate of increase of 1966.

Impact on Economic and Social Development

(5) The average rate of increase in electricity demand of the country during the past ten years was markedly high as shown in table 12-1 This is mainly attributable t othe rapid growth of the industrial and service sectors of the economy. The demand of these two sectors has increased from 695 mKWH. in 1965 to 3,490 mKWH. in 1971, constituting approximately 76 per cent of the total energy requirement of the country. Hence, the rate of increase in energy demand is closely related to the growth of the economy, particularly those sectors in which electricity is indispensable.

(6) In 1961 approximately 590 mKWH. of electric energy was generated by small thermal and diesel plants and this was increased to 4,833 mKWH. in 1971. However, of the total energy generated in 1971, 32 per cent was from hydroelectric, 63 per cent was from thermal and the remaining 5 per cent was from diesel and gas - turbine. As a result of the shift in sources from small thermal and diesel plants to large and efficient thermal and hydroelectric plants, the production costs per unit for the whole system have been gradually reduced. This is because the production costs, including depreciation, of large thermal and hydroelectric plants are approximately 9.05 and 19.59 stangs per KWH. respectively, thus lowering the average production costs for the whole system to about 18.71 stangs per KWH. The lower production costs in turn enabled the distribution authorities to lower the rates for all classes of consumer. In the metropolitan area, six rate reductions have been made, resulting in a decrease of average rate from 73.15 stangs per KWH. in 1962 to 42.17 stangs per KWH. in 1971. In the provincial areas, ten rate reductions have been made, lowering the average rate per KWH. from 1.62 baht in 1960 to 0.66 baht in 1971.

Strategies and Approaches for Third Plan Implementation

Planning for the Generating System. Three consecutive dry years, from 1967 to 1969, have substancially affected the overall installed capacity of the system by reducing the major hydroelectric power capacity. The system's inability to meet requirements during that period necessitated the installation of 150,000 KW. of gas - turbine generators. This not only resulted in an investment of an additional 340 million baht, but also in a postponement in rate reduction because the production cost per KWH. generated from the gas - turbines was much higher than the wholesale rates to the distribution authorities. This clearly demonstrated the need for proper long - term planning to meet unforeseen circumstance that may arise. Notwithstanding such difficulties, hydroelectric power will remain an important source to meet peak demand because of its low production cost. Moreover, since development of the country's limited water resources requires huge expenditures, it is necessary to ensure that water utilization is such that power benefits will be closely coordinated with irrigation, flood control and other benefits. The following measures, therefore, should be carried out :

(1) New hydroelectric power projects, to be constructed during the Third Plan period, must be studied and coordinated by concerned departments and agencies, starting from pre - investment to investment stage so as to enable the Government to compare the relative priority and feasibility of the projects in the same river basin and to ensure maximum benefits from utilization of water available from the projects.

(2) In planning for augmenting the thermal generating capacity to meet the anticipated growth in electricity requirements, it is important that the average production cost of the additional capacity should not exceed the system's prevailing level.

Planning for the Transmission System. Despite the fact that 51 changwats are covered by the present transmission line system, the efficiency and reliability in some areas is not always satisfactory. Consequently, many major consumers, particularly in mining industries, still produce their own electricity.

This coupled with the fact that, as the economy expands, a large proportion of demand will originate from industry and services, indicates the need to plan and implement measures to improve the efficiency and reliability of the transmission line system, which will not only result in an adequate and reliable supply of electric energy, but also improve the financial position of the Authority. As for the remaining 20 changwats which are not presently served by the existing transmission line system, the demand for electricity is still small and limited by the capacity of diesel plants and the higher rate structure. It is therefore important that attention should be focused on planned measures to extend the transmission line system to these remaining changwats in order of priority.

Planning for the Distribution System. Despite the construction of distribution line system throughout the country, both in the areas where electricity is generated from centralized sources and where diesel plants are used, only 6.5 million or 19 per cent of the country's total population of about 36 million received the benefits of electric services in 1970. In the Metropolitan area, only 2.5 million people, or 63 per cent of the total population was served by the Metropolitan Electricity Authority (MEA). In the provincial areas, covering 67 changwats, electric power supplied by the Provincial Electricity Authority (PEA) was made available to only 4 million people, representing 13 per cent of the total population of 32 million.

(1) In order to encourage decentralization and to ease the problems of congestion and housing in the Metropolitan area, it is important that the plan for expansion of the distribution system be closely coordinated with the planned growth of Bangkok - Thon Buri and industrial centres. In the provincial areas, although the expansion of the existing system into presently unelectrified rural areas will take a long time to complete, as it will require huge expenditures, the growth of the rural population and the need to raise the social as well as the economic welfare of the people makes it imperative that concerted efforts be made to extend the system to these areas so as to cover as many places as possible.

(2) Current efforts in the field of rural electrification are aimed at solving immediate problems, while both the short and long-term economic and financial viability of such und takings have not yet been thoroughly investigated. Therefore, prior to extending further the distribution system to rural areas, the following measures should be taken :

(a) Compare various technical methods of providing electricity to rural areas, such as setting up small diesel plants or extensions from the existing transmission system, in order to ascertain technical, economic as well as financial viability of the projects.

(b) Develop criteria to be employed in selecting villages to be electrified and the area coverage, so as to take into account the economic impact on the local economy.

(c) Establish plan targets and technical and economic piority of rural areas to be electrified. Furthermore, the methods of obtaining contributions from local communities must be further investigated and coordinated with the established priority.

Electricity Rates. Of the total gross energy generated by the Electricity Generating Authority of Thailand (EGAT) in 1971, about 72.7 per cent was wholesaled to the MEA and 20.7 per cent to the PEA, and the remaining 6.6 per cent was sold directly to industries. In addition, approximately 130 mKWH. is produced annually by the PEA for the rural areas.

(1) In 1970 consumption of electric energy by the industry and services sectors in the Metropolitan area of Bangkok, Thon Buri, Nonthaburi and Samut Prakan, accounted for about 81 per cent of the total energy sold by the MEA. The rates charged all categories of consumers in 1971 are as follows :

Category	average rate per KWH (stang/KWH)
(1) Residential	58.96
(2) Small businesses and industries	55.81
(3) Big business and industries using 30 KW or more	33.72
(4) Public lighting	38.00

(2) Of the total amount of electric energy purchased from the EGAT in 1969 by the PEA which serves 67 changwats, about 57 per cent was sold to the mining industry and the service sector, the remaining went to residential uses. Outside the provincial distribution networks, especially in rural areas where electricity is still generated from small diesel plants, the demand is solely for residential uses. The rates charged for all categories of consumers in 1970 are as follows :

Category	Average rate per KWH (Baht/KWH) in areas where electricity is : (a) purchased	(b) self - generated
(1) Residential	1.07	1.47
(2) Small businesses	0.62	0.82
(3) Business and industries of various sizes	0.43	—
(4) Public utilities	0.60	0.70
(5) Mining industry	0.40	0.50
(6) Pumping water for irrigation	0.40	0.60

(3) One of the major objectives of merging all electricity authorities into one single organization is to achieve a uniform rate structure for the whole country. Presently, the rate structures for all categories of consumers in the Metropolitan area, which is the hub of economic activity in the country, are lower than those in the provincial areas. These differences are one of the main obstacles in promoting the rapid growth of agro - industry and hence employment in provincial areas. The rate policy during the Third Plan should therefore aim to reduce the differences. One measure that may be taken to achieve this goal would be to permit the purchase of fuel and diesel oil through competitive bidding. By this procedure, cheaper oil may be obtained and the benefits derived therefrom can than be passed on to consumers in the provincial areas.

Plan for Coordinated Development. Although the three authorities were merged into a single entity in May 1969, there still exists two agencies, the Electricity Generating Authority of Thailand and the National Energy Authority, having similar duties to plan and to construct generating facilities, but following different approaches. The EGAT is generally interested in planning for the construction of large, efficient thermal plants situated near the load centres. The NEA, also functioning as the secretariat of the National Coordination Committee for Development of the Lower Mekong Basin mainly concentrates on planning for the construction of hydroelectric power plants. It is, therefore, a matter of extreme importance that in planning new electric power projects close coordination between these two agencies of the same Ministry, as well as closer cooperation between the Ministry, the National Economic Development Board, and the Budget Bureau, should be maintained at all levels of project preparation. This is necessary to prevent duplication of work and waste of resources which may result in delay in carrying out the projects.

Coordination between Sectoral Plan and Overall Development Policy. In addition to coordination among the various aspects of the sector development programmes, it is important that the sectoral programmes be closely coordinated with the overall national development policy.

(1) In order to lighten the burden on the national budget and to save foreign exchange, investments, in electric power projects, most of which are implemented by public enterprises, will have to be financed, to the greatest extent possible, from their earnings, while the foreign currency costs of the projects should be obtained from long-term loans abroad.

(2) The importance of the availability of electric energy in promoting agricultural and industrial development must be kept in mind.

(a) During the Second Plan period, the extension of the distribution system into the Chao Phraya Basin and in some areas near various irrigation projects in the Northeast, resulted in greater use of electricity from the sytem for pumping water for irrigation, thereby replacing high cost electricity produced by the diesel generators. Presently, the PEA is extending low-tension distribution lines to 10 pumping stations, in addition to the 20 stations that have already been completed. Although the energy requirement for the latter is equivalent to merely 3,200 KVA, representing only a relatively small amount for this purpose it, however, indicates that electricity can be useful in irrigated agriculture development. It is, therefore, imperative that study to ascertain economic viability and priority of irrigation areas that need to receive electricity for pumping purposes should be clearly established so that the planning of rural electrification programme can be coordinated with the agricultural development plan.

(b) The demand for electricity of the industrial and service sectors during the Second Plan constituted about 76 per cent of the total requirements of the country. It is anticipated that the demand will continue to grow rapidly since continued rapid industrial development is one of the objectives of the Third Plan. It is therefore necessary that policy on the general, as well as the special, rate reductions should be directed to support industrial growth, particularly export oriented and import-substitution industries.

Policy Objectives. The objectives of electric energy development are as follows :

(1) In order to maximize benefits of the country's limited water resources and to conserve watershed areas, new hydroelectric power projects must be based upon better coordination in both the pre-investment and investment planning stages between all departments and agencies concerned with water and related resource development.

(2) The construction of new thermal power projects must be both technically and economically feasible as to both operating efficiency and lower production cost.

(3) Expansion and improvement of high-tension primary and secondary transmission lines and substations will be encouraged so as to enlarge the existing networks to cover changwats that are still left out of the networks, and to ensure greater efficiency and reliability of supply.

(4) Accelerated expansion of distribution networks to serve communities still without electricity in the rural areas, especially those connected with other planned development projects of high national priority, will be encouraged.

(5) Gradual rate reductions for all categories of consumers will be further encouraged, so as to promote the growth of the economy. Closer attention will also be given to ways and means of narrowing differences in rate structures in metropolitan and provincial areas.

(6) Closer cooperation with member countries participating in the Lower Mekong Basin Development activities will be emphasized, to ensure that the objectives of such undertakings will be in line with the national development strategy and priorities.

(7) Investigation and research on the uses of nuclear energy, natural energy and the like will be encouraged.

Development Targets.

(1) **Installed generating capacity.** At the end of 1971, the total installed capacity of the system was 1,169 MW., consisting of 451 MW. of hydroelectric power capacity, 510 MW. of thermal capacity and 208 MW. of gas - turbine and diesel capacity. It is anticipated that by 1976 the hydroelectric and thermal capacities will be augmented to 921 MW. and 1,340 MW. respectively, while the generating capacity of gas - turbine and diesel will remain unchange, thus increasing the total generating capacity of the system to 2,469 MW.

(2) **Electric energy generating.** In 1971 about 4,833 million KWH. of electric energy was produced by the existing plants, and it is anticipated that it will be increased to about 9,914 million KWH. by 1976, representing an average annual rate of increase of 15.5 per cent. In addition, another 300 million KWH. is expected to be purchased from Nam Ngum Project in Laos annually.

(3) **Electric energy sales.** Electric energy sold by the EGAT to the two distribution authorities was estimated to be approximately 4,521 million KWH. in 1971, and this is expected to increase to about 9,574 million KWH. in 1976, representing an average rate of increase of 16.2 per cent per annum. The sales of electric energy by the MEA and the PEA to all categories of consumers in 1971 were estimated to be around 3,000 million KWH. and 915 million KWH. respectively and are expected to increase respectively to about 6,507 million KWH. and 2,207 million KWH. in 1976, representing an average rate of increase of 16.8 per cent per year for the former and 19.2 per cent for the latter.

(4) **Electricity rate.** If the electric requirements of the country during the Third Plan increases at less than the targeted growth rate of 16.2 per cent per annum, it is hoped that the EGAT will be in a position to offer rate reductions since the availability of electric energy from the Nam Ngum Project, together with the increasing capacity from new hydroelectric power projects which will replace peaking capacity of the system from gas-turbine and diesel generators, will tend to lower the overall production cost of the generating system to some extent. During the Plan period it is anticipated that the MEA will make two rate reductions, amounting to at least 80 million baht, while the PEA will also be in a position to lower its rate structure because most of the main distribution projects presently being implemented will have been completed, thus enabling the Authority to replace high cost diesel plants with electricity directly purchased from the EGAT.

(5) As the result of scheduled completion of the on - going projects such as Sirikit Dam Stage 1, Nam Phrom Dam Stage 1, Sirinthorn Dam Stage 1, South Bangkok thermal plant units 2 and 3, and Surat Thani thermal plant, together with the new projects to be implemented during the plan period, it is anticipated that the installed capacity will increase by 1,300 MK., comprising 470 MW. of hydroelectric and 830 MW. thermal. In addition, 2,800 km. of high-tension transmission lines of various sizes will be installed and 1,300 MVA of transformers will be added to the existing capacity, to permit the expansion of the system to another 16 changwats.

(6) During the Plan period, expansion and improvement of the distribution system in the metropolitan area will be launched. The project consists of phase 1 (1972 - 74), dealing with the expansion of high and low-tension distribution lines in the existing areas and the rural electrification networks. The former is to be financed by the Asian Development Bank. Included in phase 2 (1975 - 76) will be the improvement of the distribution system to ensure reliable and adequate supply of electricity.

In the provincial areas, the construction of on - going projects, such as revamping of the distribution system in the Lam Dom Noi area, and revamping of the distribution system in the Lower Southern Provinces, are expected to be completed during the Third Plan. New projects during the Plan period, such as improvement of the distribution system in Yanhee Third Stage, and Accelerated Rural Electrification, will be initiated in order to expand the area coverage and to provide services to presently unelectrified areas.

(7) Other important development projects that have been undertaken include the feasibility study of the Oil Pipe Line and Pa Mong Projects. Though the former may be economically and politically justifiable, the limited statistical data and information presently available are not adequate to determine positively the feasibility of the project. Hence further study on this matter is needed. As for the Pa Mong Project, the phase III feasibility study will include a survey of the entire irrigated areas that will come under the project and the collection of additional statistical data on hydrology and geology, so as to enable the formulation of a plan for controlling the uses of water in the reservoir and other related problems. Since the Pa Mong stage one Feasibility Report has not yet covered legal and institutional aspects, further study on these matters is needed.

(8) **Estimated Development Budget.** In order to achieve the above objectives, the budget for electric energy development during the Third Plan is tentatively set at 9,450.93 million baht, comprising 4,493.09 million baht of foreign loans, 3,102.21 million baht of public enterprises' own resources, 1,747.73 million baht of national budget and 107.90 million baht of foreign grants.

TABLE 12 - 2

Targets for Installed Capacity and Electric Energy Generation

Targets/Fiscal Year	Unit	1970	1971	Third Plan period					1977	1978	1979
				1972	1973	1974	1975	1976			
Installed Capacity	MW.										
Region 1. 42 Changwats	,,	832.4	1,017.4	1,217.4	1,467.4	1,911.4	1,911.4	2,211.4	2,286.4	2,601.5	3,221.4
Region 11. 15 Changwats	,,	67.0	67.0	91.0	131.0	131.0	131.0	143.0	143.0	143.0	143.0
Region 111. 14 Changwats	,,	70.6	85.6	85.6	115.6	115.6	115.6	115·6	151.6	151.6	151.6
Total	,,	970.0	1,169.0	1,393.0	1,713.0	2,157.0	2,157.0	2,469.0	2,580.0	2,895.0	3,515.0
Energy Generation	mKWH										
Region 1.	,,	3,673	4,541	5,177	5,941	7,056	8,193	9,101	10,034	11,226	12,360
Region 11.	,,	204	65	123	184	244	264	284	284	284	284
Region 111.	,,	219	227	268	313	380	451	529	600	617	652
Nam Ngum - Region 11.	,,	—	—	130	170	150	140	300	400	400	400
Total	,,	4,096	4,833	5,698	6,608	7,830	9,048	10,214	11,318	12,527	13,696

TABLE 12 - 3
Targets for Electric Energy Sales

Unit : Million kilowatt - Hours

Targets / Fiscal Year	1971	Third Plan period					1977	1978
		1972	1973	1974	1975	1976		
EGAT								
Energy Generation[1]	4,833	5,698	6,608	7,830	9,048	10,214	11,318	12,527
Energy Sales at Substations	4,521	5,335	6,186	7,329	8,482	9,574	10,609	11,741
— average rate of increase	—	← 16.2 →					10.8	10.7
MEA								
Energy Purchase	3,200	3,800	4,460	5,161	5,974	6,916	7,967	9,130
Energy Sale	3,000	3,560	4,183	4,845	5,615	6,507	7,496	8,591
— average rate of increase	—	← 16.8 →					15.2	14.6
PEA								
Energy Purchase & own generation	1,066	1,294	1,532	1,836	2,179	2,538	—	—
Energy Sale[2]	915	1,099	1,341	1,585	1,897	2,207	—	—
— average rate of increase	—	← 19.2 →					—	—

1) including energy purchased from Nam Ngum

2) not include EGAT's direct sales to industries

TABLE 12 - 4
Summary of Third Plan Development Expenditures Power Sector by Financing Source

(million baht)

Sources of Finance	1972	1973	1974	1975	1976	Total
National Budget Appropriation[1]	319.78	540.88	361.23	323.61	202.23	1,747.73
Foreign Loans	856.85	1,019.25	1,112.53	874.06	630.40	4,493.09
Foreign Grants	—	26.97	26.97	26.98	26.98	107.90
State Enterprises' own Revenue	519.23	703.72	656.90	624.06	598.30	3,102.21
Total	1,695.86	2,290.82	2,157.63	1,848.71	1,457.91	9,450.93

1) Including allocated cost of Quay Yai to irrigation of 415 million baht.

CHAPTER 13

SOCIAL WELFARE

GENERAL CONDITIONS

Implementation of the Second National Economic Development Plan has resulted in substantial economic progress. However, economic development has also led to a number of social changes. Industrial progress and improvements in communications have resulted in greater urban concentration and a higher rate of migration into cities and towns, thus leading to many social problems. As time passes, these problems will become even more severe as there are shortages of housing and public utilities, inadequate health services, insufficient educational facilities, unemployment, unsafe working conditions, inadequate income, and excessive increase in crime. Rural communities are also facing some changes which have arisen from physical development and new technology. Rural people demand more physical improvements, even though their resources are limited. In some remote areas, life is a struggle because of very low incomes, land ownership problems, and low productivity. Thus, many farmers have to seek new jobs or may have to sell their farms and become tenants to survive. Some farmers have moved illegally into the forest reserves, while others have migrated to urban areas. Thus the cities have to cope with additional problems. Religious practice in rural areas has declined somewhat, and many temples are deteriorating or abandoned. Activities in temples are declining. To solve these problems, the Government has taken the following action :

Land Allocation and Self - Help Settlements. The Government has undertaken to help farmers buy land, thereby allowing them to enjoy security of tenure and encouraging them to create new communities. There are two types of land allocation : self - help settlements and land allocation according to the Land Acts. During the past five years six self - help settlements have been established in six provinces, providing 10,000 families with a total of 160,000 rai. Improvements have been made in 44 other already established self - help settlements, and 3 Southern self - help settlements by providing irrigation for agriculture, promotion of vocational education and construction of necessary public utilities and facilities.

Apart from the self - help land settlement schemes mentioned above, additional land allocated to farmers has included 1.5 million rai of small plots, allocated to 60,000 families in 61 provinces and 294,500 rai of large plots for 15,000 families in eight provinces.

Labour. Basic labour training programmes have been conducted for 1,500 persons, and another 1,500 persons have up - graded their skills, including foremen and labour instructors in industry. With cooperation from the private sector the Government has established a labour skill standard and ten employment service centres in Bangkok and other provinces. These centres render assistance in the fields of labour information, labour markets, and occupational guidance for 50,000 people seeking employment. Assistance has also been given in the fields of labour protection, security and workmen's compensation for 4,000 industrial establishments. In the field of labour relations, labour disputes have been settled among 15,000 workers. In addition, management training programmes have been conducted for 1,200 supervisors and managers. Studies have been conducted on employment trends in industry in general, and surveys of agricultural underemployment have been conducted in the rural areas of 32 provinces.

Social Welfare. Welfare programmes for the past 5 years have been improved and expanded for underprivileged groups, such as the aged, beggars, prostitutes, handicapped, victims of natural calamities, destitute youths and drug addicts. Services are rendered to these people through welfare institutions. Institutions for abandoned children received 3,568 persons. Six thousand prostitutes and 1,500 aged and handicapped have received assistance. Help was also given to 4,794 orphans. Assistance in various forms was provided to 8,151 families. Medical care and welfare assistance have been provided to 118,178 drug addicts.

Community Development. During the Second Plan period rapid expansion took place as follows:

a) Area covered increased by 116 districts and 923 tambons, covering a population of 64.5 million persons.

b) Training programme for 60,000 village leaders in the field of local and tambon administration were conducted.

c) Establishment of a training centre in each tambon both for social and administrative purposes.

d) Formation of 232 professional groups, one in each amphoe for vocational promotion purposes.

Hilltribe Welfare and Development Programme. Sixty mobile teams were set up to render assistance to 600 hilltribe villages, with a population of 70,000. Land for agriculture has been allocated to 2,000 hilltribe families, in four hilltribe land settlements. Agricultural extension programmes aimed at the hilltribes include planting of cash crops, such as tea and coffee, to replace poppy cultivation. Teams of buddhist monks were also sent to 100 hilltribe villages.

Major Problems in the Third Plan

In the past decade, although emphasis was given to construction of economic infra - structure, social development programmes were undertaken concurrently. Nevertheless, the country is facing the problems of a high rate of population increase, and inadequate support for education and for training of skilled labourers. Economic growth at the moment is not enough to absorb all those seeking work. Incomes are still very low. These problems have been made more urgent by the economic depression due to the trade deficit, low price for farm products, drop in U.S. spending in Thailand, and the change in the value of the U.S. dollar. Hence, it is clear that in the next five years Thailand will face some social problems:—

Employment. Disguised unemployment normally affects 20 - 35 per cent of the rural labour force annually. During the months of February to April, 40 to 50 per cent of rural workers and 5 per cent of urban workers are unemployed. Public construction projects in the past alleviated some of the problems of unemployment. With better cooperation and specific targets set for the benefit of the rural population, such projects should increase job opportunities for the rural people. Since 1970, unemployment has increased due to low productivity and decrease in U.S. expenditures. It is necessary to aim specifically at creating more job opportunities in the future, when the problems will be even more severe.

Unequal Distribution of Income. In the past decade, per capita income has increased by 50 per cent, but per capita income in the Central Region remains higher than in other regions. The urban population earns more than the rural people and even in the urban areas striking differences in earnings still occur. Wages for most of the unskilled labour force have not risen for more than ten years, while people in the professions have received salary increases.

Unequal Distribution of Benefits Derived from National Development. At present almost all of the benefits are in the urban areas, while the rural areas lag behind. Progress among regions is unequal. In the past decade, basic economic development projects were launched in the Northeast, and such projects should be expanded to other regions as well.

Repercussions of Industrial Development. In the last ten years industries have been developed without any plan and coordination. No target has been set for increasing employment or increasing wages. Most workers have not received any training to upgrade their skills. Most of the industries are located in the metropolitan areas, leading to migration of workers to the cities. The number of working women and children is increasing, while wages are minimal. Most of the workers still depend on the present industrial rules and regulations. They have no security in terms of compensation for work injuries or rights to sick leave. Services in this field are still lacking. Housing shortage is also a major problem, as are the problems of inadequate public facilities and utilities.

Land Allocation. Inadequate farm land is the most deep rooted problem because population increases while yields remain almost stable, and land is not fully utilized. Smaller land holdings result in lower output per farm. Many farmers have to rent more land, or sell their farms and move illegally into the reserved areas. Such practices create economic, social and administrative problems.

Security of Life and Property. Most people still feel insecure with regard to both life and property. This is due to an increasing crime rate in both rural and urban areas.

National Unity Problems. In order to continue building up a sense of national unity, the benefits of development must be more equally distributed among the population of the country without regard to differences in income level, education, culture or race. The promotion of national unity is of the highest political importance.

Role of Women. Educational levels, earnings and employment security of rural women, as well as those in the urban labour force, are still low compared to those of men. There are still inadequate welfare and family planning services. Many urban and rural women have grouped together to render various kinds of social services. These groups deserve recognition and support.

Youth Problems. Youth problems are of paramount importance, due to an increasing number of out-of-school and illiterate youths. Student discipline has become more lax. There are increasing numbers of unemployed young graduates. An increasing number of young people have been earning their living at great risk on the roads and at night.

Adjustment of Social Value System. Economic growth, accompanied by industrialization and modernization, affects the way of life and attitude of people who have traditionally been attached to agriculture. Many established values such as loyalty, integrity, and kindness have already been abandoned while other previously established norms such as lack of discipline, emphasis on self or group interest over common interest etc. are preserved thereby inhibiting the development effort.

Religion, Culture and Moral Standards. Economic progress may also bring about changes in the attitude of the people with regard to traditional culture and religion as well as moral standards which, in some cases, may be harmful to national prestige.

Objectives of Social Development for the Third Plan (1971—1976)

The following are the social development objectives of the Third Plan :

1) To promote job opportunities and provide employment services.

2) To upgrade skills and to increase income for the underprivileged, especially farmers and manual workers.

3) To anticipate, and try to prevent, problems which may arise as a result of population increase, inadequate farmland, stagnant agricultural production, urbanization, migration, industrial development and employment.

4) To promote the harmonious adaptation of Thai traditional culture to those aspects of modern civilization and technology which would be most beneficial to the welfare and happiness of the people.

5) To relieve the hardships suffered by some segments of both the rural and urban population.

6) To encourage private sector participation in the process of social development at every level.

Guidelines for the Third Development Plan

1) A national level committee should be formed in order to :

a) Set targets for increasing employment opportunities in ~~various~~ Government projects.

b) Consider projects which will create more jobs.

c) Decrease or limit private capital - intensive investment.

d) Promote and assist labour intensive investments in the regional areas by means of policies towards customs, income taxes, and interest rates, and provide the basic requirements for encouraging this type of investment.

e) Establish special projects to train personnel to conduct policy - oriented research on labour - intensive projects, both for agriculture and for small industries.

2) Local employment committees should be established to render employment services to the people in the different areas.

3) Employment targets must be clearly identified for all accelerated rural development projects. Public projects should be initiated in the remote or disaster areas in order to increase job opportunities.

4) Labour market information, employment advice and services must be made available to local employers and investors.

5) Labour training centres should be expanded to the rural areas to train workers, particularly war veterans and new job - seekers.

6) Forest reservation policy, land ownership title laws, land allocation and the Land Act should be revised. Management of land allocation should also be improved for maximum efficiency.

7) Community development areas should be expanded, and emphasis should be given to training local leaders at villages and tambon level. Vocational development groups and rural development volunteer groups should be promoted.

8) Foreign workers in Thailand should be subject to adequate control and fair treatment.

9) The Labour Act, especially the section on labour protection, wages, labour relations and some aspects of social insurance should be revised. The establishment of employers' associations and employees' associations should be encouraged within reasonable limits.

10) Social welfare services should be made available to women, children, the aged, and the handicapped, while welfare services form private organizations should also be encouraged.

11) More moral and religious education should be added to the school curriculum, especially in remote areas.

12) Cultural extension should be promoted. Where necessary, sacred objects or places which have real historic significance should be repaired or improved. Such projects should be listed according to priorities.

Development Projects for Third Plan

The social development programme during the Third National Economic and Social Development Plan consists of 33 major projects which can be classified into seven categories, namely : labour, community development, social insurance, land allocation and self-help settlements, social welfare, hill-tribe welfare and religion and arts.

Labour. Labour activities will be, in accordance with policy, to increase employment and assist the established national committee on job creation and employment targets to alleviate the problems of unemployment. The main projects are :—

1. Forty-five employment offices will be established to provide services in areas that have development projects and extensive capital investment. The offices will also provide employment information, job placement services and will cooperate with training schools and institutions to give opportunities for job training. Recommendations for special projects will be made in order to create jobs in disaster or unemployment areas.

2. Three regional training centres will be established in expanding industrial areas to assist in training for new labour force entrants, other workers, foremen, supervisors and war veterans. Skill testing will also be done in these centres.

3. Laws on foreign workers should be enforced to give more opportunity to Thai workers. Skilled foreign workers will be replaced by well trained Thai labour.

4 .According to the New Labour Protection Act, labour protection should be enforced with regard to working hours, holidays, women and child labour, wages, and compensation funds. An office of compensation funds should be established to give wider welfare services and promote safety on the job. Various projects for labour protection should be initiated. The minimum wage should be readjusted in line with present living standards and productivity. More personnel should be added to the regional offices to maintain constant surveillance of working condition.

5. Labour Relation Laws should be enforced in order to promote the formation of proper Labour Associations and Employers' Associations. Employers should be well informed about the value of Labour Associations, which will cooperate with employers in improving working conditions, wages, welfare and production.

6. Research on labour and employment opportunities should be conducted in order to analyse demand for labour, the unemployment situation, disguised unemployment, labour utilization, welfare and some types of social insurance, including study of the costs and benefits to employers.

Community Development. Community development plays an important role in supporting national development by encouraging the collective effort on the part of the people and Government officers. Major community development programmes during the Third National Economic and Social Development Plan will include the opening of amphoe development areas, to cover 20 amphoes annually, most of which will be in the Northeastern and Southern provinces. Training programmes will be conducted for 660 development officers annually. Also 15,000 local leaders will be trained annually to enable them to undertake community development responsibilities and to work together effectively with Government officers. Improvements will also be made to four existing Community Development Technical Assistance Centres, along with the establishment of four additional regional community development offices in areas 1, 6, 7 and 8. Four pre - school centres will be set up annually in 5 provinces. In addition, under the community development volunteers project, training programmes will be provided annually for 100 community development volunteers.

Land Allocation and Self - Help Settlements. For a country with a rapid population increase and the majority of its labour force in the agricultural sector, the shortage of land for cultivation presents a very serious problem. In addition, the nature of land holdings is also related very closely to national security. Hence, programmes for land allocation and self - help settlements will be undertaken to help citizens acquire ownership of land. During the Third Plan period, the provision of land will be undertaken through self - help settlements and the additional allotment of land for agricultural purposes. .. is envisaged that during the Plan period 5 additional self - help settlements will be established, along with improvements to public utilities such as roads, water supplies, irrigation systems, school buildings, and health stations, within the existing 53 self - help settlements in 34 provinces. During the Plan period an additional 5,000 families will be resettled and 125,000 rai of land will be allotted to them. In addition, an occupational promotion programme aiming at better earnings and stable income will be launched for settlement members, with particular emphasis on farming methods consistent with the agricultural development plan.

Apart from the self - help land settlement schemes of the Public Welfare Department, the Land Department will also provide additional land for agriculture allocating 3,500,000 rai of small plots and 375,000 rai of large plots during the Plan period. Moreover, work on the granting of land titles will also be accelerated by drawing 1,500 sheets of land maps covering an area of 3,750,000 rai and conducting photo mapping covering an area of 25,000 square kilometres.

Social Insurance. During the first three years of the Plan period, the Government will accelerate the passage of the Social Insurance Act which will prescribe insurance for birth, sickness, accidents and death from work connected causes. Meanwhile, a study will also be undertaken to determine a suitable social insurance system for Thailand, along with necessary services such as medical services, public relations services and social insurance administration.

Social Welfare. During the Plan period, Government activities in the field of social welfare will include programmes of assistance to people in disaster areas and distressed persons such as destitute youth, the aged, the crippled, mental patients and prostitutes. These people will be given institutional care and will receive occupational training. In addition, private social welfare organizations will be encouraged to play a more active role in social development activities during the next 5 year period.

Hilltribes Welfare. The hilltribes welfare and development programme during the next 5 years will emphasize the improvement of 4 existing hilltribes settlements to accommodate 1,000 families evacuated from the guerilla infested area in the Northern part of the country. Twenty - five mobile hilltribe welfare and development teams will be formed annually to render assistance to 600 Northern hilltribe villages with a population of 50,000. Moreover, research work on 5 hilltribes will also be carried out for successful implementation of the projects, and evaluation of past performance will be made.

Teams of Buddhist monks will be sent to disseminate Buddhism in 500 Northern hilltribe villages with a population of 100,000. In addition, the planting of cash crops such as tea and coffee will be encouraged in 3,000 hilltribe villages.

Religion and Arts. Religion plays an important role in spiritual development, enabling people to live together peacefully. Several programmes have been formulated by the Department of Religious Affairs to promote Buddhism, as well as other religions. These involve the sending of 200 Buddhist monks to perform religious functions and render social services to the people in remote areas of Thailand. Also 2,000 Buddhist monks will be dispatched to disseminate Buddhism and render assistance to people throughout the country. During the Plan period religious libraries and museums will be set up in the North and Northeast border provinces. Other programmes include the establishment of 1,000 young Buddhist welfare units all over the country, the improvement and renovation of temples in various regions as well as the repair and maintenance of religious buildings of other religions.

A number of projects have also been formulated by the Department of Fine Arts to preserve the national heritage. These include projects for the improvement of museums and archaeology, the improvement and expansion of seventeen existing museums (9 in the Central Region, 5 in the North, 1 in the Northeast, and 2 in the South), and the establishment of two additional museums in the Northern and Southern parts of the country. In the next five years four additional museums will be opened (2 in the North, 1 in the South, and 1 in the Northeast) and two museums will be built (1 in the South, 1 in the East). Four of the existing museums will be remodelled. Fifty five historical buildings will be repaired and data will be collected pertaining to national historical archeology. Work on library development and national archives will aim at gathering archives at important regional libraries. International practices of record keeping on microfilm will be adopted for educational and research purposes.

In addition, programmes for preservation and extension of Thai music and drama will also be undertaken. Thai arts textbooks, training of art instructors and the almost extinct local art industries will be promoted. Music and art will be extended to 23 provinces in various regions.

Major Problems And Long — Term Prospects

Social development aims primarily at material improvement, but also includes changes in the concepts and attitudes of the people. These objectives cannot be realized within a five year plan period since much time is required to bring about necessary changes in the society. In considering the long-term outlook for social conditions, which is subject to continual change and the emergence of new social problems, it is appropriate that these problems should be given careful consideration at this early stage for remedial action. Problems which require special attention are as follows :

Labour. During the Third Plan the labour force will increase by at least 2.5 million, which would need to be absorbed mainly in agriculture. In the past decade industrial establishments increased threefold from 16,000 to 44,258. However, they did not provide enough employment. Industries supported by the Board of Investment created 9,000 new jobs annually. A large number of seasonal and low wage labourers find employment is not readily available in the agricultural sector, and they need to look for work outside agriculture, During the Plan period unemployment will be more acute than ever before, even among college graduates. Thus the Government should give these matters careful consideration, covering the fields of education, vocational training, and labour promotion. Some of the major problems such as labour welfare, working security, women and workey labour protection, low income, housing, pensions, and the roles of employers and workers associations, should be solved in order to formulate better policies on job creation, wages, and proper social insurance.

Community Development. Community development is a basic approach which strengthens the economic, social and political structure of the country. It aims at the eradication of rural problems by raising the standard of living and assisting the people to adjust their way of life to the changes wrought by economic development. Shortages and transfers of development officers are the major problems in community development, and make it very difficult to expand area coverage. To solve these problems, it is necessary to increase the number of development officers and reduce the high rate of transfers by providing the necessary incentives to attract and hold these officers.

Social Welfare. A wide range of social problems is expected to become more serious, particularly in densely populated communities. Although the Government has to shoulder the burden of providing social welfare in terms of both manpower and capital, wealthy people also have social responsibilities, because, in some cases, the emergence of social problems is attributable to the rapid expansion of trade and industrial activities in the private sector. Hence, it is the obligation of private individuals and business circles to cooperate with the Government in supporting the work of private welfare organizations, especially in providing financial support to children and youth from poor families, handicapped people and the crippled. These problems would be alleviated in a short time if aid were given in the fields of medical care, education and housing. It is the Government policy to support the role of private organizations in providing social welfare services.

Hilltribe Development and Welfare. Hilltribe settlements are very scattered in the Northern mountain areas, and this creates economic as well as social and political problems. Past projects on hilltribe development and welfare have faced many obstacles and development targets have not been reached. It is necessary to overcome these problems and seek appropriate ways to assist the hilltribes to become good citizens of the country. The shortage of reliable statistics on the hilltribe population is one of the important drawbacks. Another is the practice of shifting cultivation, which should be replaced by settled agriculture. Moreover, there are currently several agencies responsible for hilltribe programmes including the Ministry of Interior, Anti-Drug Committee, Ministry of Education, Ministry of Public Health and the Police Department. Practically all of these Government agencies undertake activities of a similar nature, without explicit policies to define the relative scope of their responsibilities. As a consequence, it is necessary to formulate a definite policy which will serve as a guideline for effective implementation and coordination of this work.

Land Allocation and Self-Help Settlements. The problem of land in rural development is of crucial importance. At present the rate of illicit felling in forest reserve land is very high. The major factor contributing to the high rate of illicit felling is the shortage of land for cultivation, which is related very closely to the rapid increase of population and low productivity. Hence, there is an urgent need for the allocation of additional land to meet the rising demand of the population, along with the provision of assistance in terms of finding suitable jobs and capital for investment. Moreover, at present, land allocation activities are scattered under the authority of many Government agencies, such as the Department of Public Welfare, the Department of Land Cooperatives, the Department of Land and the Department of Land Development. There is still no definite management policy on the matter of land and to date the problem of land has neither been solved nor alleviated. In order to solve the problem, it may be necessary to combine the efforts of land allocating officers under a single direction and supervision. A new agency may be created with adequate staff to accelerate the land allocation programme in accordance with the needs as identified from surveys of encroachment on reserved forest land. Most important of all there should be enough funds to carry out effective assistance.

On the question of existing self-help settlements, land allocation should be accelerated along with further improvements so that they will be viable enough to be transferred to changwat or administrative unit jurisdiction. Moreover, at present, the pace of granting land title deeds to holders is still slow and this calls for accelerated action through utilization of aerial photo-mapping which was initiated during the previous Plan.

Religion and Culture. It has become evident that during the past decade of rapid economic and technological advancement, attitudes, outlook and values of the society have been considerably influenced and altered, particularly as regards religion. At present, the role of temples in influencing the lives of the people has been reduced, particularly their role as educational institutions and community meeting places. It is also noticeable that, even in rural areas, people have become alienated from temples and religious influence due to the rapid pace of economic and physical change. It is therefore felt that religious education should be broadened to encompass existing circumstances and values in order to draw these people who have not been attracted by religious teaching carried out in the more conservative and traditional context.

In regard to cultural matters, Thai society has been opened to the increasing influence of foreign culture. Even though the adoption of foreign culture may bring more comfort and convenience in daily life, it may also be detrimental to the traditional culture which is of historical value to the nation. It is thus appropriate that the Government should formulate definite policies for the preservation of the national heritage. In addition, Thai culture and art should be promoted and disseminated among the younger generation.

TABLE 13-1

Development Budget for Social Affairs

Government Budget 1971-1976

(million baht)

Development Budget Distributed by Types of Expenditures	1972	1973	1974	1975	1976	1972 - 1976
1. Labour	13.60	27.60	31.90	36.20	28.90	137.60
2. Community Development	101.50	108.50	115.50	122.50	129.50	577.50
3. Land Allocation and Self-Help Settlements	114.40	118.40	119.50	108.40	112.90	573.60
4. Hilltribes Welfare	16.70	18.70	20.70	22.70	24.70	103.50
5. Social Welfare	57.80	61.70	65.90	69.60	71.30	326.30
6. Religion and Art	81.90	89.90	97.90	105.90	113.90	489.50
7. Accelerated Rural Development (Social Sector)	25.40	26.60	28.30	30.00	31.70	142.00
Total	411.30	450.80	479.70	495.30	512.90	2,350,00

TABLE 13 - 2

Total Development Budget for Social Affairs Distributed by Financial Sources 1971 - 1976

(million baht)

Financial Sources	Total Development Budget (1971 - 1976)
Government Budget	2,350.00
Foreign Loan	75.13
Foreign Aid and Grants	350.00
Total	2,775,13

CHAPTER 14

URBAN AND LOCAL GOVERNMENT DEVELOPMENT

GENERAL SITUATION

In the past the main policies were to develop infra - structure, with particular emphasis on communication and irrigation systems. This was to promote general agricultural and rural development. Development expenditures during the last two Plans were mainly for rural and agricultural programmes.

Urban and local government development, whether in the Bangkok metropolitan area or other cities and towns, did not receive high priority. It is generally accepted that rural development depends a great deal on the services provided by the urban area. The rapid increase of population results in a high rate of urban growth, partly because of rural - urban migration. Services in the fields of money, finance, marketing, imports and exports are all available only in the urban areas, particularly in the Bangkok metropolitan area. All the banking institutions have their headquarters in Bangkok. Most industries, which are sources of employment and production, are located in the Bangkok metropolitan area and its surroundings. Imports and exports of agricultural products, agricultural machinery, fertilizers and insecticides are all channelled through Bangkok. Moreover, Bangkok is still also the centre of expertise and technology which assists in the growth of rural areas and the nation in general.

Even though rural development depends heavily upon urban areas, the investment expenditures of the Government in the urban areas have not expanded correspondingly. The expansion of the various cities and towns has been unplanned and uncontrolled. The Bangkok metropolitan area, which is already a large city, has been expanding at a rate higher than those of other urban areas. The population of the Bangkok metropolitan area is now more than 30 times larger than that of the next largest urban area, i.e. Chiang Mai, and the rate of in - migration to the Bangkok metropolitan area has been increasing.

When cities grow without proper planning or controls, a number of serious problems arise. There are inadequate and unsanitary housing conditions, problems of slums and squatter settlements, traffic congestion, insufficient public utility services, uneconomic use of land, rapid rise in land prices due to speculation, and also a number of administrative problems, such as the need for crime prevention action. Moreover, environmental problems such as air and water pollution, inadequate sanitation, high density of urban living quarters with no planning of land use and growing slum areas still exist in many urban areas. These will adversely affect, both directly and indirectly, the economic and social development of the country.

The problems of the Bangkok metropolitan area, coupled with the importance of the area to the rest of the Kingdom, result in a heavy burden borne not only by Bangkok residents but also by those living outside the metropolitan area. The higher cost of living and of doing business in Bangkok will in turn increase the cost of services rendered to those living outside the Bangkok metropolitan area.

Given these problems, the policy in the Third National Economic and Social Development Plan (1972—1976) is to draw more attention to the development of urban and local government areas. Urban development is not restricted to the development of the Bangkok metropolitan area but should generally include all other urban areas as well, particularly those urban and local government areas which have shown rapid growth in the recent past and a clear prospect of future expansion. But the building up, or expansion, of towns to becomes centres of economic and social activities is an extremely lengthy process and requires a substantial amount of capital investment. During this period, it is suggested, therefore, that priority be given to the alleviation of the Bangkok metropolitan area problems and the problems of some important urban and local areas so as to reduce to the extent possible, the burden borne by the whole population. The development of urban areas and local governments will be divided into three main categories :

1. Metropolitan development
2. Development outside the Metropolitan Area
3. Local Government Development

For the development of categories 1 and 2, the development projects executed and financed directly by the central government will be considered in this Plan. For local government development, development expenditures will mainly be self-financed, with limited subsidy from the central government.

Metropolitan Development

The rapid growth of the Bangkok metropolitan area has resulted from both domestic and foreign private investments. Because Bangkok is the centre of all government agencies and private economic activities the growth of the metropolitan area and population tends to feed on itself. During the Second Plan period, public investment in the metropolitan area was neglected, most of these going to the rural areas for the improvement of infra-structure in agriculture, communication, irrigation, etc. For these reasons, the proportion of public investment in the metropolitan area was too low.

Performance of the Second Plan

During the Second Plan period, even though a number of public utilities and public facilities projects were undertaken by the Government, accomplishments were still modest and problems were not alleviated. The performance of the Second Plan can be summarized as follow :

1. Housing. Since the beginning of the First Plan, the Government has built 20 housing projects for low income families. These accommodate 1,312 families. During the Second Plan period public housing for low income families in the Bangkok metropolitan area increased by 2,736 units. The Government has also built houses for middle income families, amounting to 621 units. In the provinces outside the Bangkok metropolitan area 186 units were built.

2. The Metropolitan Waterworks. The Government has set up the Metropolitan Waterworks Authority as a public enterprise by combining the waterworks of Bangkok, Thon Buri, Nonthaburi and Samut Prakan. The aim of this consolidation is to create a self-financing authority so as to reduce the amount of the annual Government subsidy. But during the initial period of operation the Government will be asked to continue its subsidy. During the First Plan period the Government built additional capacity at the Bangkok and Thon Buri water treatment plants, thus increasing capacity from 175,000 to 372,000 cubic metres per day. During the Second Plan period the Government employed a consultant to undertake a study and prepare a master plan for the next 30 years. This master plan is now being used as a guideline for future construction work. At the same time, a short-term improvement programme has been undertaken, including the provision of more deep wells, which has increased the daily production capacity to 987,600 cubic metres.

3. Drainage and Sewerage. During the Second Plan period the Government employed a consultant to study and prepare a master plan to be used as a guideline for future construction work in the Bangkok metropolitan area drainage, sewerage and flood protection project. The consultant was also retained to prepare detailed construction plans for the central district, surrounded by Klong Padung on the one side and the river on the other, and the surrounding adjacent area covering an area of about 12 square kilometres. During the Second Plan period, the Government has also constructed a 3.3 metre diametre tunnel about 2 kilometres long and a pumping station with a capacity of 16 cubic metres per second together with a river outfall structure. Designed and supervised by the consultants, these are located south of Rama IV road and cost approximately 70 million baht.

4. Road Construction in the Metropolitan Area. This is a ten year programme prepared by a committee with representatives from various Government departments and started in 1964. It was planned to construct 25 roads and to build 2 more bridges across the river. During the Second Plan period the Government has allocated budget subsidies to the Municipalities of Bangkok and Thon Buri and 7 of these roads have been completed. One of the bridges, at Tha Chang, is under construction and expected to be completed in 1973. The second bridge is to be constructed at the end of Sathorn road.

Problems of the Metropolitan Area.

The Bangkok metropolitan area has been expanding very rapidly during the last 10 years. The population growth rate has exceeded 5 per cent annually, due both to natural increase and in-migration from rural areas. The high rate of population increase has resulted in the following problems :

1. Town Planning. As of the end of the Second Plan period there was still no officially accepted town plan for the Bangkok metropolitan area. A town plan was prepared by a team of experts in 1960 but was never officially approved. Early in 1970 the Bangkok Municipality prepared a city plan and again, in early 1971, the Town and Country Planning Office prepared a revised Bangkok metropolitan plan. The plans recently prepared by the two agencies differ in a number of important respects, such as the size of the metropolitan area, the size of proposed population and land use. The lack of an accepted town plan to be used as a guideline has led to a number of difficulties Traffic planners and agencies responsible for providing public utilities, such as water supply, drainage, telephone, electricity and roads, have had to prepare their own long range programmes and to make their own assumptions about the future growth of the city. These assumptions are not always the same.

Apart from the lack of an accepted town plan, there is at present no authorization to implement any plan if it were accepted. The drafting of the city planning act has been undertaken during the Second Plan period, but the act has not yet been promulgated.

Lack of accepted city plans and laws to enforce such plans presents a major obstacle to the orderly expansion of public utilities in the future.

2. Housing. The rapid expansion of the Bangkok metropolitan area and the lack of legal enforcement of land use has resulted in a number of problems in the field of housing. There are shortages of accommodation and lack of construction and sanitary standards. This creates slums and squatter settlements.

It is estimated that, at the end of the Second Plan period, there is a housing shortage of 100,000 units. If the present trends of public and private housing construction programmes were to continue, this shortage would increase to 170,000 units in 10 years time. It is also estimated that, out of this shortage, housing shortfall for the lowest income group, with a family monthly income of less than 1,500 baht, will be about 60,000 units.

Slums and squatter settlements are to be found scattered all over the city. The largest is at Klong Toey Port area. There are about 4,300 families or 25,000 persons living in this slum area as squatters. In all of these slums and squatter areas there is a serious lack of public utilities, such as electricity, water supply and educational facilities. This leads to a number of serious social problems.

The administration of the Government housing programmes is also divided among a large number of Government agencies. There is often lack of coordination and efficiency of operations is low. Government assistance to the private sector in the field of housing also needs to be expanded. In addition, studies need to be undertaken on the suitability of the various possible sources of funds for housing development.

3. Water Supply. Potable water is one of the most important basic needs of the people. Services provided by the Metropolitan Waterworks Authority during the Second Plan period must be considered as inadequate.

Water production capacity has not increased for a long time and population has been growing very rapidly, resulting in a general shortage of water, particularly during the dry season. The deep well programme undertaken during the Second Plan period does not produce an adequate supply of water and the number of wells abandoned annually increases because of the expansion of areas affected by underground salinity.

The distribution system has also not extended sufficiently because of the rapid growth of the city, lack of a city plan and lack of land use control. Planning for expansion of the distribution system has proved, therefore, to be a very difficult undertaking.

The administration and management of the Metropolitan Waterworks Authority itself also needs to be improved, so that the Authority will be in a position to operate efficiently and economically. Revenue is collected, at present, for only 20 per cent of the water produced. Metres not being read, those read not being billed, those billed not being collected, and non operating metres not being repaired are just some of the administrative problems that the Metropolitan Waterworks Authority faces. Internal administration together with its governing regulations needs to be revised so as to increase operational efficiency.

4. Traffic and Transportation. The number of vehicles registered in the Bangkok metropolitan area during the Second Plan period has been increasing at an annual rate of over 15 per cent. At the same time, road construction programmes have increased the road surface by less than 1 per cent. The road network in the Bangkok metropolitan area is most inadequate. There are a large number of dead end streets and this substantially reduces their usefulness as traffic arteries. Corrective measures undertaken during the Second Plan period have been spot corrections. This temporarily alleviates the problem, but the lack of a master plan for the traffic and transportation system will result in continued traffic congestion and substantial economic waste.

There are also a number of administrative problems. There are many agencies dealing with the various aspects of traffic and transportation in the Bangkok metropolitan area. The Municipalities build roads, the traffic police install signals, the local police are responsible for traffic management, the Land Transport Department controls buses, the Public and Municipal Works Department is responsible for bridges across the river. Close coordination and cooperation among these agencies is still lacking.

Investment programmes of these various Government departments are still not well coordinated and this often results in duplication and wastages.

Road users do not obey rules and regulations. There is no strict enforcement of laws. There are also cases where the existing laws, rules and regulations do not provide sufficient authority to the law enforcement officers, such as in the field of parking facilities and parking restrictions. This, in turn, leads to an inefficient use of road surfaces.

The public transportation system, particularly buses, also needs improvement to increase convenience and efficiency and to catch up with the demand.

5. Other problems. Apart from the four problems mentioned above, there are, in the Bangkok metropolitan area, a number of other problems connected with drainage, sewerage, flood protection, telephone, electricity, education, health, sanitation etc. These should also be tackled so as to reduce the existing difficulties and to plan for future expansion. In general, the rapid growth of the metropolitan area in the absence of a definite master plan will undoubtedly exacerbate the existing problems.

Measures, Targets and Projects of Metropolitan Development

To eliminate and alleviate the problems and obstacles mentioned above, during the Third Plan period, the following aims and projects in the field of Metropolitan development have been formulated :

1. City Planning. As a basis for effective implementation of town planning activities, the city planning law must be promulgated during the early period of the Third Plan. This city planning act shall set up basic principles of city planning, both in the Bangkok metropolitan area and the other urban areas. The city planning act will be a basic guideline for an orderly and efficient growth of cities, establishing basic principles of land use control and utilities expansion.

In the Bangkok metropolitan area, a metropolitan government will be set up covering the area of four provinces : Bangkok, Thon Buri, Nonthaburi and Samut Prakan. The administrative unification will be aimed at increasing efficiency and economy by leading to closer coordination among related administrative units. Agencies covering the same 4 provinces have already been established for public utilities such as the Metropolitan Electricity Authority and the Metropolitan Waterworks Authority.

The Town and Country Planning Office of the Ministry of Interior has completed the revised Metropolitan Bangkok City Plan during the period of the Second Plan. This revised city plan sets up basic principles for the growth of the Bangkok metropolitan area. In particular, measures are proposed to keep the size of population within manageable limits. These include both control of the natural growth rate through family planning and reduction in the rate of migration from the provinces into Bangkok. The measures recommended in the Plan also include the development of other towns in the Bangkok metropolitan region and in other regions. During the Third Plan period, implementation of these measures will be initiated.

2. Housing. The population growth rate in Thailand has been very high, about 3.1 per cent annually. A very high rate of about 5.5 per cent per year has prevailed in Bangkok—Thon Buri, leading to problems of housing shortage. Rapid population increase usually results in high density, and poor and unsanitary housing conditions which are a source of diseases and social problems.

In an attempt to solve this problem the Government has built public housing to be rented or sold, particularly in the densely populated areas, so that low and middle income families can be provided with adequate and sanitary housing facilities.

However, the past performance of the Government's public housing programme has been most inadequate compared with the demand for housing, particularly in the high density urban areas like Bangkok and Thon Buri. The rate of population increase has exceeded the rate of increase in the number of housing units built during the last ten years. During this period 150,000 housing units were built, while the population increased by about 1.1 million. If an average size of family is 5.5 persons, it can be computed that the shortfall in number of houses built during the past decade has been approximately 170,000 units or 17,000 units per year.

In the Greater Bangkok Plan 1990 prepared by Litchfield Whiting Bowne and Associates, it is indicated that the demand for housing of the population of the metropolitan area will be approximately 19,000 units annually, and the Plan recommended that, in order to provide housing facilities for the population of the metropolitan area, 17,000 units of housing facilities should be built annually. If the proposal of Litchfield Whiting Bowne and Associates is taken into consideration it can be seen that the Government's housing programme during recent years was too limited and that a larger programme must be initiated.

Construction of public housing, particularly for low income families, is the Government's responsibility. Until now, the public housing construction programme has not advanced very rapidly because of a number of obstacles. There is not as yet an accepted Government housing policy and it is therefore impossible to prepare a long range programme or even to allocate sufficient manpower for such work. Moreover, there are many agencies involved in similar activities with the result that annual budget allocations are spread thin among uncoordinated agencies. Nor are there any accepted guidelines on sources of funds.

In order seriously to tackle these housing problems it is recommended that the Government establish the following definite policy on housing to serve as the guideline of operating agencies :

The Government will build and promote the construction of housing facilities to balance with the demand of the people, income level, and also the Government's resources. The Government shall provide land and a town plan and shall promote investment in construction materials manufacturing. This will be done by an efficient agency.

To implement the general policies set up above the following measures will be undertaken :

(a) The Government shall formulate a national housing development programme covering a period of 30 years (1972—2002). This programme will have to be revised and updated from time to time to adjust to changing circumstances.

(b) The greater part of the Government housing programme will be for low income families. For middle income families housing construction will be undertaken not only by the Government but also by the private sector. The Government shall assist and encourage the private sector to invest in housing projects.

(c) In order to render assistance to the rural population and to lessen the need to migrate to the towns, the Government shall expand its activities in the field of land settlement schemes and land allocation projects for the rural population with inadequate farm land.

(d) The Government shall conduct housing demand surveys at regular intervals, in order to be informed about changes and developments so that the projects can be adjusted in accordance with the actual situation.

(e) In order to achieve coordination between the various Government agencies, a coordinating committee will be set up to determine policy and to find solutions to various problems. This committee also will look into questions of administrative improvements.

(f) The Government shall assist and promote the establishment of financial institutions to extend housing credit at low rates of interests.

(g) The Government will seek additional funds through the issuance of Bonds, or other kinds of loans, for the direct expansion of housing programmes or shall guarantee housing loans, both domestic and external.

(h) The Government shall promote new methods of lower - cost construction. The Government will promote long-term investments in construction and building materials industries. Assistance will also be given to research on construction material development and skill training activities.

(i) The Government shall prepare master plans for towns, and relate these plans to housing needs in urban, rural and regional areas of the Kingdom.

(j) Housing problems in the densely populated urban areas will receive high priority.

(k) A target is set to eliminate the housing shortage in the Bangkok metropolitan area within 10 years. This is to be done by aiming at an annual rate of housing construction of 10 units per 1,000 population.

(l) Quality control on housing shall be enforced. Consideration will be given to the health, social and environmental aspects of the housing programmes.

(m) Housing policies and their implementation shall be in accordance with general town planning principles.

(n) The Government shall seek capital and shall promote private investment in this field so that expenditures on housing construction will amount to 4 per cent of Gross National Product within 10 years.

(o) The Government will provide and assist in the provision of land for housing construction, particularly in the larger urban areas by first using public land.

(p) The Government shall make amendments in laws, rules and regulations so that housing programmes can be developed efficiently and in accordance with the policies and guidelines set up by the Government.

During the Third Plan period, the existing complex problems of Metropolitan Development will be alleviated by the following actions :

A central housing agency will be established to replace the various agencies with similar functions in the Second Plan period. The establishment of this new single central agency will be undertaken in stages. The first stage would be the appointment of a housing coordinating committee with its own secretariat, assigned the responsibility of formulating an overall housing plan and coordinating the work of other existing implementing agencies. Future housing construction programmes of the various Government agencies will have to be integrated within the general principles set up by the Committee. Housing drogrammes within this framework shall not be restricted to new construction but shall also include redevelopment and urban renewal programmes. Slums and squatter settlements which are now scattered all over the area will be redeveloped.

With regard to financing, studies will be undertaken and housing finance institutions will be established. These financial institutions will assist in housing construction, urban renewal and slum clearance programmes. Sources of finance will be sought both at home and abroad. Domestic saving for housing purposes will be promoted. Foreign financing, in the form of both loans and grants will be sought to improve the housing conditions of the Bangkok metropolitan area.

The target set for housing construction and urban redevelopment for the Third Plan shall be that within a period of 10 years there should be no more housing shortage in the Bangkok metropolitan area. Housing for low income families, which is the direct reponsibility of the Government, will be built in various parts of the metropolitan area, both in the central districts and in the suburbs. During the Third Plan, the target has been set for developing slum areas housing 30,000 families, building 5,073 flat units and 780 row housing units in low income housing projects. Promotional privileges will also be granted to the private sector to induce investment capital into the field of middle income housing in the metropolitan area.

Studies and recommendations will also be made on standards of housing and building materials, and these will be useful to builders, both Government and private. The study, research, planning, design and setting up of standards of construction and building materials shall be undertaken jointly by the various agencies concerned. Most of the work in this field will be performed by the centre for building research and development of the Applied Science Research Corporation of Thailand. The centre for building research and development shall be expanded to be able to cope with the scope and quality of work that is expected to be performed during the Third Plan period.

With the aim of providing information useful for future planning activities, data collection in the field of housing will also be regularly undertaken and its coverage will extend much beyond what has been done during the Second Plan period.

It can generally be said that housing problems, both in terms of quality and quantity, are mostly felt in the Bangkok metropolitan area. The problems have been accumulating for a long time and urgent action must be undertaken in the Third Plan period.

3. Metropolitan Water Supply. Measures have been taken by the Metropolitan Waterworks Authority, in accordance with the recommendations of the consultants to increase administrative efficiency. Plans have already been formulated to solve the present problems and to prepare for future expansion. The Metropolitan Waterworks Authority will continue its administrative improvement programmes, so as to be able to serve users efficiently and expeditiously. This will also result in increased revenue for the Authority. Comprehensive and careful financial planning programmes will be implemented. These administrative and financial improvement programmes will lead to the readjustment of water rates, so as to equalize water rates for users in various areas under the jurisdiction of the Authority. Another aim of the readjustment of rates will be to ensure that the Authority collects sufficient revenues for its current operations and future capital investment programmes.

On the production side, treatment capacity of the Metropolitan Waterworks Authority will be increased from approximately 1 million cubic metres per day at the end of the Second Plan period to about 2 million cubic metres per day at the end of the Third Plan period. Quantitative improvements in water supply will require increased treatment capacity, increased production from deep wells and expansion of the distribution system. The aim will be to provide 3.5 million people in the Bangkok metropolitan area with an adequate water supply at the end of the Third Plan period. The production capacity built during the Third Plan will be adequate for the projected consumption up to the end of the Fourth Plan.

To increase the production and distribution capacity of water supply systems in the Bangkok metropolitan area during the Third Plan period, financing will be sought both at home and from international lending agencies.

4. Traffic and Transportation. At the end of the Second Plan period the Government arranged for consultants to prepare a Traffic and Transportation Master Plan for the Bangkok metropolitan area. The consultants will make recommendations on short-term measures and will also prepare a long range master plan to be used as a basic guideline for the traffic and transportation systems of the Bangkok metropolitan area, so as to alleviate the serious traffic congestion which has been an ever-present problem during the Second Plan. The consultants are expected to complete their data collection, studies and recommendations (both short and long-term) for traffic and transportation in the Bangkok metropolitan area by the first half of the Third Plan period. They will also recommend projects to be started during the first half of the Third Plan.

A new toll road authority will be set up to construct and manage expressway systems in the area. A traffic planning bureau will also be set up as a central agency for planning and coordination. New investment programmes in traffic and transportation in the Bangkok metropolitan area will be subject to review and approval by this bureau. Plans will be prepared and regularly revised so as to take account of the changing economic and social conditions of the Bangkok metropolitan area.

The problems of traffic and transportation in the Bangkok metropolitan area will have to be tackled by various approaches. These may include localized improvements in the highly congested areas, construction of expressways, improvement of mass transit systems, and construction of more bridges across the river.

Investment programmes will be studied and sources of financing, both local and foreign, sought to improve traffic and transportation. Fiscal measures will be used, such as adjustments in taxes to increase revenues earmarked for traffic and transportation improvement programmes. Loans will be requested from international lending agencies or foreign governments. Private investors will also be encouraged to invest in the capital structure of traffic and transportation facilities.

The administration and management aspects will also be dealt with. New traffic laws will be promulgated during the period of the Third Plan to enable enforcement officials, particularly traffic police, to perform their duties more efficiently. Other laws expected to be promulgated are a highways act and building codes.

5. Drainage and Sewerage. During the Second Plan period, the master plan for drainage, sewerage and flood protection has been prepared and approved. Detailed design has already been completed for the central districts of the metropolitan area. Construction will be started during the Third Plan period in accordance with the master plan and the completed designs. Construction will start from the central districts. Early in the Third Plan period, the construction of a tunnel and a pumping station in the Rama IV area will be completed and put into operation. This will alleviate the flooding problems of the 7 square kilometre area. The next project will be another pumping station at the south end of Klong Padung Krung Kasem and its related appurtenances such as locks, gates, klong walls etc. This drainage system is to be constructed within the Third Plan period.

Administrative reorganization of drainage and sewerage will also be implemented during the Third Plan. In order to increase the efficiency of drainage and sewerage operations, they will be the responsibility of the Metropolitan Waterworks Authority. This is in accordance with the recommendations made by the management consultant who has worked closely with the agencies concerned. The department will be assigned the responsibility of planning, construction and operation of drainage and sewerage systems and of regularly revising the plan in accordance with changing economic and social circumstances.

Financing will be sought both at home and abroad for capital investments as recommended in the approved master plan.

Generally, drainage will receive higher priority in the Third Plan than sewerage, since there will be direct tangible improvements and visible savings from reduced damage to public and private property.

6. Public Parks. In the Metropolitan area, as well as in other urban areas, existing public parks do not provide enough recreation space for the increasing population. In Bangkok and Thon Buri, for example, public parks have a total area of only 1,000 rai or ⅓ rai per 1,000 persons. An expert on physical city planning recommends that the recreation area should be about 10 rai per 1,000 persons. Therefore, during the Third Plan period the central government will assist various municipalities and sanitary districts to set up public parks, using either royal property or donated land or, if necessary, buying new land. Furthermore, the central government will also assist in the establishment of youth centres and camps in various regions of the country.

7. Other Activities. During the period of the Third Plan, apart from the activities mentioned above, there will also be other development schemes for the Bangkok metropolitan area. These include provision of recreation facilities, improvement of health and education programmes, youth clubs and camping grounds. Electricity and telephone services will also be expanded to keep up with the increasing demand.

Long - Term Future Perspective

As the policies for metropolitan development in the Third Plan period are carried out, appropriate long - term strategies will also be devised. With the implementation of the city planning law and land use policies, public utilities and facilities agencies will work more systematically and efficiently. The severity of existing problems, such as traffic congestion, communications, drainage, water supply, housing, will be reduced, and the city will grow in a more orderly manner. However, new problems will emerge, such as air and water pollution. New projects to alleviate air and water pollution will be started, and solutions will have to be sought to deal with other new problems.

Development Outside the Metropolitan Area

Performance of the Second Plan

During the Second Plan period, the development projects outside the metropolitan area were as follows :

1. Provincial Waterwork. During the Second Plan period the Government has improved and expanded 73 existing provincial waterwork systems and built 49 new ones. This increases the number of provincial waterworks systems, under the responsibility of the Public and Municipal Works Department, to 145 with a total daily production capacity of 396,240 cubic metres. Apart from this, the Government has also assisted other agencies such as municipalities, sanitary districts, tambon authorities and private companies to construct and operate water supply systems on a concession basis. There are 42 of these in operation. This makes a total of 187 provincial water supply systems with a total daily production capacity of 471,264 cubic metres. The target figure in the plan document was 460,000 cubic metres per day.

2. Village potable water supply. There are altogether about 50,000 villages in the whole Kingdom without adequate potable water supply systems. The Second Plan target was to provide 20,000 of these villages with a potable water supply, with particular emphasis on the Northeastern Region. A coordinating committee was set up because of the large number of Government agencies involved in this activity. The agencies concerned are the Departments of Public Health, Mineral Resources, Public and Municipal Works, Irrigation, Local Administration and the Office of Accelerated Rural Development. The facilities provided are quite varied in nature, including village water supply systems, deep wells, ponds, dug wells, concrete tanks, and small reservoirs. During the Second Plan period 14,560 villages have been served.

3. City Plan Preparations. The Government is aware of the importance of city planning laws and the importance of having city plans for the various urban areas. During the period of the Second Plan, the Government has attempted to expedite the promulgation of the City Planning Act. Since it was first presented to Parliament it has been revised and it is now planned to submit it again. During the period of the Second Plan 19 comprehensive plans and 356 special project plans were also prepared.

Problems Outside the Bangkok Metropolitan Area.

There are also a number of problems for urban areas outside the Bangkok metropolitan area. These can be summarized as follow :

1. Town Plans. As with the Bangkok metropolitan area, the growth of other urban centres has been unplanned and uncontrolled. During the Second Plan period a number of city plans have been prepared, but without the legal authority to implement them. Therefore, other urban areas share the same town plan problems as Bangkok.

2. Provincial Water Supply. At present, there are water supply systems in all the provincial capitals and the larger urban areas. But in most instances the quantity produced, the distribution systems and the administration of these provincial water supply schemes need to be improved and expanded. Revenues of these provincial water supply systems cover only the operating expenses and are not sufficient for capital expansion programmes.

3. Village potable water supply systems. Potable water constitutes a very important element in the life of communities large or small. Potable water supply schemes for smaller villages and sanitary districts are still inadequate even though there are quite a number of Government agencies involved, such as the Departments of Local Administration, Public and Municipal Works, Public Health, Mineral Resources, Irrigation and the Office of Accelerated Rural Development.

4. Transportation. In large and small towns and villages improved communication systems, such as rural roads, will ameliorate the standards of living of the population. There is still a serious shortage of such facilities, both in terms of quality and quantity. A substantial amount of work needs to be done in this field.

Measures, Targets and Projects Outside the Metropolitan Area.

1. Town Planning. The City Planning Act will be a guideline for orderly and efficient growth of cities and towns. It will set up basic principles of land use control and utilities expansion. Town plans for various densely populated urban areas will build on this base by establishing a zoning system and planning traffic, land use, and housing.

During the Third Plan period 6 comprehensive plans will be prepared each year, eventually totalling 30 plans. Special project plans will also be prepared at the rate of 60 plans annually, totalling 300 plans. Enforcement laws will be promulgated for 18 comprehensive plans and 7 special project plans. New satellite towns will also be promoted in the Bangkok metropolitan area.

To implement the city plans as they are approved, an agency for urban renewal and development will be established during the Plan period. This will be the central implementing agency to undertake construction work laid down in the city plans. This new agency will take the form of a public enterprise, with authority to acquire land and undertake construction in accordance with the plans.

2. Provincial Water Supplies. During the Third Plan period studies and planning will be undertaken, and priorities set for provincial water supply systems, including those that are the responsibility of both the Public and Municipal Works Department and the municipalities. Expansion of existing systems and the construction of new ones will be undertaken. Financing will be sought from domestic sources and from abroad.

At the end of the Second Plan, production capacity of all provincial water supply systems, including those under the control of municipalities, stood at approximately 0.5 million cubic metres per day. During the Third Plan period this production capacity will be increased. Existing systems will be expanded and new systems constructed at the rate of about 20 annually. At the end of the Third Plan period, the production capacity will be increased to approximately 660,000 cubic metres per day. Regional water supply centres will be established in 4 regions, namely, the Northern, Eastern, Central and Southern Regions.

During the period of the Third Plan surveys, studies and planning will be conducted for 9 high priority localities. An expansion programme will be undertaken in those systems where master plans have been prepared.

3. Village potable water supply systems. The objective of this project is to provide potable water for small rural communities. During the period of the Second Plan, there have been quite a number of Government agencies involved in this field. They are the Departments of Public and Municipal Works, Mineral Resources, Public Health, Local Administration, Irrigation, Community Development and the Office of Accelerated Rural Development. The types of services rendered are also varied. They include artesian wells, village water supply systems, dug wells, ponds, concrete and steel tanks and small reservoirs. During the period of the Third Plan, efficiency will be increased through better coordination and cooperation among these various agencies, so that the population will benefit even more from this scheme.

During the period of the Third Plan, various kinds of village potable water supply systems will be provided to 20,000 more villages. During the Second Plan period 15,000 villages were provided with such services.

To expedite the progress of this programme, assistance will be requested from abroad both in terms of technical know - how and equipment.

In the formulation of plans for the provision of potable water supply to these villages, studies and surveys will be conducted in different areas to determine their requirements and the most suitable method of providing such services.

4. Other development activities. One of the most important items will be the setting up of new towns. Existing urban areas with growth potential will be developed in all regions, in accordance with plans prepared by the Town and Country Planning Department of the Ministry of Interior.

Long - Term Future Perspective

The long-term implications for urban development arising out of the foregoing objectives and policies are as follows: Public utilities and facilities in the densely populated urban areas will be more adequate and better developed. Other regional urban centres will be established in order to distribute economic growth more evenly among the regions. Communication systems will be improved. Migration to the Bangkok metropolitan area will be controlled. All these will result in bridging the gap between the Bangkok metropolitan area and urban areas in the rest of the Kingdom.

Local Government Development

Local government administration in Thailand can be classified into 4 categories: provincial (changwat) administrative authorities (71 authorities), municipalities (120 municipalities), sanitary districts (631 districts), and tambon administrative authorities (43 authorities). These different local administrative units are not directly controlled by the central and regional administration. They are responsible for the well - being of the people under their jurisdiction, and their main functions are to provide services in the fields of communication, education, health, utilities and public services. The purpose of local government is to educate and advance local people in democratic practices. However, the present financial resources of the local governments are too limited to meet the need for public services. Therefore, on behalf of the central government, the Ministry of Interior still takes responsibility for supervising and assisting local governments in the fields of economic, financial, social and administrative development activities in order to encourage them to become self - financing organizations in the near future. The various forms of local government mentioned above can again be classified in terms of their significant economic and demographic characteristics into 4 groups :

(1) Metropolitan Authorities (2 municipalities)
(2) Urban Communities (Other municipalities)
(3) Rural Communities (Sanitary districts)
(4) Rural Areas (Provincial and tambon authorities)

This section of the Chapter will concentrate on problems and development of local government in the metropolitan, urban and rural communities. Problems and developments in rural areas have already been mentioned in Chapter 6. The scope of this section is limited to development expenditures financed from local government sources and from the grant - in - aid from the central government. A.R.D. development projects will not be included, since most of them are dealt with in the relevant chapters, such as the chapter on agriculture.

Local Government Development in the Second Plan

1. Local Government Expenditures During the Second Plan period (1967—1971) total local government expenditures amounted to 6,062.0 million baht with an annual growth rate of 9.0 per cent. Of this amount 3,950.0 million baht, or 65 per cent, were from local revenues, which grew annually by 7.9 per cent and 2,112.0 million baht, or 35 per cent, came from the central government subsidy, which increased by 11.7 per cent per annum.

2. Local Government Revenues. The sources and proportions of revenues of the Bangkok and Thon Buri municipalities give some idea of the prevailing local government revenue situation, at least in densely populated urban areas. During the first 4 years of the Second Plan period (1967—1970) the total revenues of the Bangkok and Thon Buri municipalities were 1,729.0 million baht with an annual growth rate of 9.2 per cent. Of this amount, 609.0 million baht were from local revenues, with an annual growth rate of 12.4 per cent, and 1,120.0 million baht from central government taxes. These constitute 35 per cent and 65 per cent of the total revenues respectively. These sources of revenue can be classified into the following 9 categories :

1) Business taxes	47.0 %
2) Rent taxes	16.1 %
3) Taxes on Liquor, Rice Export, Petroleum Products and Entertainment	9.5 %
4) Other taxes and duties	8.6 %
5) Vehicle taxes	8.3 %
6) Fees, Fines and Permits	4.2 %
7) Other Revenues	3.4 %
8) Land Development Taxes	2.4 %
9) Public Utililies and Enterprises	0.5 %

3. Expenditures of the Local Government Development Programmes. During the Second Plan period the total development expenditures of the metropolitan authorities, urban and rural communities were 6,062.0 million baht. Detailed expenditures on these development programmes were as follows :

- Education : 1,030.0 million baht or 17 %
- Road construction and drainage : 1,636.0 million baht or 27 %
- Sanitation : 848.0 million baht or 14 %
- Water supply development : 182.0 million baht or 3 %
- Other development programmes including fire protection, electricity, vocational training recreation, and administration : 194.0 million baht or 32 per cent of the total development expenditures

Problems and Obstacles of Local Government Development

There is no definite master plan for local government development, and only general policies are stated in the National Development Plan. Various problems and obstacles for economic and social development of local government still exist as mentioned below :

1. Financial problems. Every form of local government faces financial problems. Expenditures exceed revenue collection, even in the municipalities with high population density and prosperous economic areas. The Bangkok and Thon Buri municipalities which constitute the metropolitan area, still have to depend upon a large central government subsidy. The main problems are threefold :

(a) Inefficiency of the local government revenue collection system. Revenues collected fall short of those expected. Tax rates are low even in those cases where the central government has authorized the municipalities to collect higher taxes.

(b) Local government budgets have usually been prepared on an annual basis, but without a master plan for either long or short - term periods. Moreover, modern methods of accounting control and manpower planning have not been fully employed. The revenues collected by local government are normally used for expansion of current administrative activities. Hence, there are insufficient funds for capital investment.

(c) Development programmes usually face delays in receiving approval for grants from the central government. Most of the programmes do not receive subsidies for any fiscal year until the middle of that year.

2. Administration. Instability of local government administration, especially that of the municipalities, occurs because of campaigning among candidates for municipal council positions. Local government administration, therefore, carries out its duties and responsibilities inefficiently and unproductively.

3. Institutions, Rules and Regulations. The development problems of densely populated urban areas, especially the metropolitan area, are becoming more and more acute. Public and social services do not meet the demand. There are problems in the fields of sanitation, traffic congestion, health services, increasing slum areas, and safety of life and property. These problems must be alleviated urgently during the Plan period. Moreover, the need to establish metropolitan institutions with appropriate rules and regulations is of top priority.

Local Government Development Programmes for the Third Plan

1. Objectives

(a) To promote further local development planning and to coordinate this with the needs of the people in harmony with the National Development Plan.

(b) To bridge the gap between more and less - developed areas.

(c) To assist local government to operate with greater autonomy not only in the fields of economics and finance, but also in the fields of public services, social services and local administration.

2. Policies

(a) To assist local government to increase revenues through improving the efficiency of the tax collection system, increasing tax rates, and collecting additional kinds of taxes. Local bodies should participate more in development programmes and should become autonomous in the near future.

(b) To expand public utilities, facilities and social services programmes in the regional centres such as Khon Kaen - Ubon Ratchathani, Lampang - Chiang Mai, Songkhla - Hat Yai, Chai Nat, Chon Buri, and Phetchaburi, so that these areas can function more efficiently as regional centres.

(c) To seek greater participation by local governments in development programmes. Local authorities should contribute a higher proportion of their own resources to development programmes. Larger subsidies from the central government will be allocated in the fields of education and health.

(d) To promote development programmes in the underdeveloped areas so as to help bridge the gap between these underdeveloped areas and the more developed ones.

(e) To assist in the preparation of more local plans, particularly regional and provincial plans which support the National Supplementary Plan.

3. Local Development Expenditures

During the Third Plan period it is expected that the total local development expenditures will amount to 8,543.0 million baht, with an annual growth rate of 6.0 per cent. Of this sum, the amount self - financed will be 5,813.0 million baht, with an annual growth rate of 9.0 per cent, and the remainder will total 2,730.0 million baht and will grow by 4.0 per cent annually. The proportion of the two sources of funds will be 68 per cent and 32 per cent respectively, as compared with 65 per cent and 35 per cent respectively in the previous plan period. Therefore, the proportion of self - finance in the Third Plan will be larger than in the previous plan (see Table 14.1)

4. Targets and Strategies

Targets and strategies for local government development in the Third Plan period can be stated as follows (see Table 14 - 1):

(a) Revenue targets for local development. During the Third Plan period it is estimated that revenues needed for local development activities will amount to 5,813.0 million baht, with an annual growth rate of 9.0 per cent. Metropolitan Authorities will require 2,629.0 million baht, with an annual rate of growth of 10.0 per cent, urban communities will need 1,326.0 million baht, with an 8 per cent annual growth rate. Rural communities will require 466.0 million baht, with an annual growth rate of 8 per cent, and rural areas 1,392.0 million baht, with an annual growth rate of 9.0 per cent.

TABLE 14 - 1

Economic and Social Development Expenditures[1/]
Local Government-Third Plan

(million baht)

Sources of Funds	1972	1973	1974	1975	1976	Annual rate of increase	Total
Self - Finance[2/]	973.0	1,060.0	1,154.0	1,257.0	1,369.0	9.0	5,813.0
1. Metropolitan Authority	431.0	474.0	521.0	573.0	630.0	10.0	2,629.0
2. Urban Community	226.0	244.0	264.0	285.0	307.0	8.0	1,326.0
3. Rural Community	83.0	88.0	93.0	98.0	104.0	6.0	466.0
4. Rural Area	233.0	254.0	276.0	301.0	328.0	9.0	1,392.0
Government Subsidy	563.0	515.0	530.0	551.0	571.0	4.0[*/]	2,730.0
	(147.0)	(155.0)	(164.0)	(174.0)	(184.0)	(6.0)	(824.0)[3/]
1. Metropolitan Authority	80.0	84.0	88.0	92.0	96.0	5.0	440.0
2. Urban Community	230.0	241.0	253.0	265.0	278.0	5.0	1,267.0
3. Rural Community	10.0	11.0	12.0	13.0	14.0	8.0	60.0
4. Rural Area[3/]	243.0	179.0	177.0	181.0	183.0	2.2[*/]	963.0
Total Local Development	1,536.0	1,575.0	1,684.0	1,808.0	1,940.0	6.0	8,543.0
1. Metropolitan Authority	511.0	558.0	609.0	665.0	726.0	9.2	3,069.0
2. Urban Community	456.0	485.0	517.0	550.0	585.0	6.5	2,593.0
3. Rural Community	93.3	99.0	105.0	111.0	118.0	6.1	526.0
4. Rural Area	476.0	433.0	453.0	482.0	511.0	2.0	2,355.0

Foot Notes :

1/ Some central government subsidies to local development projects excluded here are :
(1) primary education, (2) road construction for Bangkok and Thon Buri, (3) sewerage, drainage and flood protection systems for Bangkok - Thon Buri, (4) rural road construction, (5) rural water resources development, and (6) A.R.D. projects.

2/ Including vehicle tax subsidy.

3/ The figures in parenthesis include the projects of sewerage, drainage and flood protection systems and road construction for Bangkok and Thon Buri.

4/ Including general central government subsidy, promotion of rural democratic development project, special area subsidy, destitute area border area subsidy, Regional Development Funds, A.R.D. rural development centres, and Counterpart Funds.

*/ Exclude Counter Funds.

Strategies for increasing revenues. In order to improve the effectiveness of local revenue collection during the Plan period, committees to increase local revenue should be appointed immediately by the central government.

(b) Targets for central government subsidies. During the Plan period, it is estimated that central government subsidies, in the form of budget allocation, will amount to 3,114.0 million baht with an average annual rate of increase of 4.0 per cent. The metropolitan area will receive 824.0 million baht or 26.4 per cent, with an annual growth rate of 6.0 per cent. Urban communities will receive 1,267.0 million baht or 40.6 per cent, with a 5.0 per cent annual rate of increase. Rural communities (excluding education) will receive 60.0 million baht or 2.0 per cent with a rate of increase of 8.0 per cent annually. Rural areas will receive (excluding education) 963.0 million baht or 31.0 per cent with an annual rate of increase of 2.2 per cent.

Strategy for allocation of central government subsidies. During the Plan period it is strongly recommended that the Bureau of the Budget, the NEDB, DOLA Ministry of Interior, jointly determine the priority of projects, programmes and plans, This list will be closely coordinated with annual budget appropriations. Closer coordination should also be achieved between the regional and local plans on one hand and the National Plan on the other.

(c) Targets for expenditure on major development programmes. During the Third Plan period Metropolitan authorities, urban and rural communities will implement the various development programmes shown in Table 14.2 with the development expenditures shown in Table 14.3. The various major development programmes are as follows :

(i) Education. The target expenditure for education is set at 1,270.0 million baht or 19 per cent of the total local development spending. The share of Metropolitan areas spending is 621.0 million baht. Out of this about 206.0 million baht is central government subsidy for construction of 50 primary and secondary schools and for teachers' salaries. The share of urban communities' spending is 648.0 million baht. Out of this about 557.0 million baht is a central government subsidy for construction of 200 primary and secondary schools and for teachers' salaries.

(ii) Road construction and drainage. Total estimated expenditure on this item is 2,100.0 million baht or 32 per cent of the total development expenditure. The Metropolitan authorities will spend 1,174.0 million baht, of which about 384.0 million baht will be a central government subsidy for about 40 kilometres of road maintenance and construction, construction of about 100 kilometres of drainage and sidewalks and construction of about 12 bridges. The remaining 926.0 million baht will be spent on the urban and rural communities. Out of this about 392.0 million baht will be a central government subsidy for about 400 kilometres of road maintenance and construction about 1,000 kilometres of drainage and sidewalks and for construction of about 80 bridges.

(iii) Sanitation. It is expected that the Metropolitan authorities, urban and rural communities will spend 926.0 million baht or 14 per cent of the total development budget. Out of this about 21.0 million baht is subsidized by the central government.

(iv) Public health. There will be an expenditure of 579.0 million baht for this purpose or 9.0 per cent of the total development expenditures. Out of this about 30.0 million baht is subsidies from the central government for improvements to existing hospitals and the building of 10 new municipal health centres in the metropolitan areas. About 100 health centres will also be established in urban and rural communities.

(v) Water supply. It is expected that urban and rural communities will spend 182.0 million baht or 3.0 per cent of the total development budget for this purpose. Of this, about 129.0 million baht will be spent from their own revenues for improvements to 19 existing water supplies in the urban communities. The remaining 52.0 million baht will be spent for construction and improvement of water supply in the rural communities. Out of this about 6.0 million baht will be a central government subsidy for this purpose.

(vi) Other development programmes. The proportion of development programmes under " others " will be reduced. This includes activities concerned with vocational training, urban renewal, fire protection, administration, etc. The estimated expenditures are 1,513.0 million baht or 23 per cent of total development expenditures. Out of this about 555.0 million baht will come from general central government subsidy.

Comparing the Third Plan with the Second Plan, development spending for education is increased from 17 per cent to 19 per cent, for road construction and drainage from 27 per cent to 32 per cent, the same proportion of 14 per cent will be spent on sanitation, public health expenditure will rise from 7 per cent to 9 per cent, water supply will receive the same proportion of 3 per cent, and expenditure on other development programmes will be reduced from 32 per cent to 23 per cent.

TABLE 14-2

Comparative Expenditures-Municipalities and Sanitary Districts
By Type of Expenditure-Third Plan

(Percentages)

Types of Local Government Development Programmes	During the Third Plan period									Proportion
	Bangkok-Thon Buri			Other Municipalities			Sanitary Districts			
	Self—Finance	Sub-sidy	Total	Self—Finance	Sub-sidy	Total	Self—Finance	Sub-sidy	Total	
1. Education	16	25	18	7	44	25	—	—	—	19
2. Road Construction and Drainage1/	30	46	34	24	28	26	45	62	48	32
3. Sanitation	21	1	16	23	1	12	15	—	12	14
4. Public Health	12	1.5	10	12	1.5	7	12	—	10	9
5. Water Supply	—	—	—	10	—	5	10	10	10	3
6. Others	21	26.5	22	24	25.5	25	18	28	20	23
Total Development	100	100	100	100	100	100	100	100	100	100
Development	72	100	—	70	100	—	62	100	100	71
Administration	28	—	—	30	—	—	38	—	—	29
Total Expenditure	100	100	—	100	100	—	100	100	—	100
Proportion of Expenditure	76	24	100	51	49	100	88	12	100	100

Foot Note: 1/ Total used for computation of proportions includes subsidies for road construction and sewerage, drainage and flood protection systems for Bangkok and Thon Buri.

TABLE 14-3
Local Government Expenditure
By Classification-Third Plan

(million baht)

Types of Expenditure	1972	1973	1974	1975	1976	Total 1972-76	Proportion Third Plan	Proportion Second Plan
1. Education	218.0	234.5	252.6	272.0	292.8	1,269.9	19	17
2. Road Construction and Drainage	359.7	387.5	417.7	450.3	485.5	2,100.7	32	27
3. Sanitation	158.4	170.7	184.2	198.8	214.6	926.7	14	14
4. Public Health	99.0	106.7	115.2	124.3	134.1	579.3	9	7
5. Water Supply	32.1	34.1	36.3	38.6	41.0	182.1	3	3
6. Others[1]	259.8	279.5	301.0	324.0	349.0	1,513.3	23	32
Total Local Development	1,127.0	1,213.0	1,307.0	1,408.0	1,517.0	6,572.0	100	100
Excluding projects[2]	67.0	71.0	76.0	82.0	88.0	384.0		
Total Local Development in this plan	1,060.0	1,142.0	1,231.0	1,326.0	1,429.0	6,188.0	100	100
Self Finance	740.0	806.0	878.0	956.0	1,041.0	4,421.0	71	70
Subsidy	320.0	336.0	353.0	370.0	388.0	1,767.0	29	30

Foot Notes: 1/ Including vocational training urban redevelopment, fire protection, electricity, administration, etc.

2/ Road construction projects and sewerage, drainage, and flood protection projects which are already mentioned in the first part of this chapter.

Recommendations

During the Plan period, a number of proposals need to be considered. These proposals are as follows :

1. To achieve the economic and social objectives in local development as stated above, DOLA of the Ministry of Interior should collect all the development projects and programmes of all the 751 local governments and consolidate them into a local development plan classified into the following 3 main categories :

(a) Metropolitan Authorities economic and social development plan

(b) Urban communities economic and social development plan (municipalities)

(c) Rural communities economic and social development plan (sanitary districts).

In each category, every project shall be classified and grouped into 6 development programmes as already mentioned. It is also recommended that such plans be coordinated closely with the city plans prepared for these communities. Such plans, including objectives and projects, should be prepared on an annual basis to be presented to the NEDB. The NEDB will study the master plan, programmes, projects, priorities and budget allocations.

2. In the field of road construction and drainage, the method normally used is for the municipalities to submit entire projects for subsidy. If the central government decides to help, it will subsidize the entire project. So as to increase local participation in development programmes, it is recommended that the principle of matching funds be adopted. It is further recommended that the central government subsidize 80 per cent of the value of the approved projects and that local governments finance the remaining 20 per cent. This will increase the feeling of responsibility of local governments.

3. It is generally accepted that the problems of insufficient public financing, as well as of local financing, are becoming more and more acute. It is recommended that the present tax collection system should be revised to improve its efficiency, that tax rates be increased and that some new kinds of taxes be introduced. The new tax legislation should include property tax and land tax with proper criteria to ensure that the tax is just and equitable.

CHAPTER 15

PUBLIC HEALTH

Development of Public Health during the First and Second Plans

1. Briefly stated, the policy for public health development in the First Plan can be divided into two stages: The first stage (1961-1963) aimed at improving medical care by increases in staff, number of hospital beds, and equipment. During the second stage (1964-1966) the objectives shifted towards prevention of diseases, and particularly towards expansion of health services available in remote rural areas and locations which lacked easy access to hospitals. In addition, training of various categories of medical personnel was expanded.

The policy objectives of the First Plan were retained for the Second Plan: The Government accelerated the growth of rural health and medical care and improvement of existing services, especially for low income groups. The following policies characterized the Second Plan:

(a) More rapid expansion of public health activities throughout the Kingdom, with the particular aim of improving services for people in remote rural areas or locations lacking communication facilities.

(b) Expansion and improvement of medical care services, both physical and mental, in central and regional areas, so as to meet the requirements of the population; also to carry out refresher training programmes for personnel of various categories to improve the quality of care.

(c) To expand studies and research work in the medical and public health fields.

2. Targets and operation to date

From a study of the planned targets in the development of public health during the First and Second Plans period, it might be concluded that the performances are close to the targets. At the end of the First Plan, there were 4,100 physicians, 11,880 nurses, 1,400 midwives, 3,020 practical nurses, 15,400 hospital beds, 217 first class and 882 second health centres, and 1,403 midwife centres.

In the Second Plan the targets were set up as follows: 1,344 clrss physicians, 3,830 nurses, 1,810 midwives, 4,900 hospital beds, 50 first class health centres, and 750 second class health centres, and 1,425 midwife centres. The achievement of these aims was as follows: 1,450 physicians, 4,758 nurses, 1,866 midwives, 2,150 practical nurses, 6,200 hospital beds, 73 first class health centres, 1,054 second class health centres, and 600 midwife centres. At the end of the Second Plan period the totals reached the following levels: 5,550 physicians, 16,638 nurses, 3,260 midwives, 5,170 practical nurses, 21,600 hospital beds, 290 first class health centres, 1,936 second class health centres, and 2,003 midwife centres. The details can be seen in the comparison of targets and achievements in Table 15-1

3. Important Results of Programmes undertaken during the First and Second Development Plans:

(a) Health Promotion and Expansion of Public Health Services. Improvement and expansion of activities in the first and second class health centres and midwife centres; construction during the First Development Plan of 70 first class health centres, 216 second class health centres, and 647 midwife centres. During the Second Development Plan another 73 first class health centres, 1,054 second class health centres, and 600 midwife centres were established. There will be by the end of the Second Plan period 290 first class health centres, 1,936 second class health centres, and 2,003 midwife centres.

To improve sanitation and environment during the Second Plan period 23,800 villages water supplies have been developed, approximately 300 small scale water supply units and 4,370 units of water supply for schools have been installed. A rural nutrition project, initiated in 1971 in the Northeastern Region, has been expanded to other regions, totalling 19 provinces.

Projects for the prevention and control of contagious diseases, such as plague, smallpox, and cholera have been conducted and have so far been successful, while other programmes to fight communicable diseases, such as tuberculosis (medical examination and treatment, and B.C.G. vaccination) have been expanded to the rural areas. The tuberculosis mortality rate per hundred thousand population has been reduced from 31.5 in 1961 to 27.2 in 1969.

With regards to malaria, the mortality rate has been reduced from 24.5 per hundred thousand population in 1961 to 10.4 in 1969.

(b) **Expansion and Improvement of Medical Care:** The ratio of physicians, nurses, and hospital beds to population has been improved from 1961 to 1969 as follows:

Year	Physicians	Nurses	Hospital Beds
1961	1: 7,789	1: 2,693	1: 2,078
1969	1: 6,569	1: 2,195	1: 1,691

(c) **Training of Different Categories of Medical Personnel:** During the First and Second Plan periods, increases in the number of personnel of different categories is as follows:

Physicians—totalled approximately 1,450. After the completion of the Second Plan it will be possible to train approximately 360 physicians per year.

Nurses — 2,125 were trained by seven hospitals under the control of the Ministry of Public Health, and approximately 2,625 more were trained by other institutions, including the military and the private sector.

Practical nurses — approximately 410 were trained annually by six hospitals under the control of the Ministry of Public Health. A total of 2,000 persons were trained.

Midwives — the rate of training by the Ministry of Public Health expanded to 3,000.

(d) **Studies and Research Work:** During the First and Second Plan period, studies and research have been carried out as follows:

(1) Medical studies and research work in the fields of viruses, Thai indigenous medicinal herbs, and drug standardization and control.

(2) During the Second Plan period 40 public health laboratories in 40 provinces were improved. Research has been included in their work, both in the centre and in the regions through the combined public health and medical laboratory services of the Medical Sciences Department.

(e) **Public Health Development Budget during the First and Second Plan period:** The public health development budget during the First and Second Plan periods was 3.6 per cent and 3.4 per cent of the total national budget. The reduced budget percentage for public health development in the Second Plan is due to the increase in the budget for administration and national defence which affected the economic and social development funds. However, in comparing the public health development budget and the total national development budget, in the First Plan it accounted for 4.8 per cent of the total and increased to 5.7 per cent in the Second Plan.

During the Second Plan period, the budget for public health totalled 3,558.43 million baht, of which about 90 per cent was allocated to development expenditure in the rural areas. It is divided into various projects as follows:

Health and Disease Prevention:	1,855.83 million baht or 55%
Medical care:	1,528.77 million baht or 43 %
Personnel training:	103.66 million baht or 2.7 %
Studies and Research:	70.17 million baht or 0.3 %

Foreign aid for public health during the Second Plan amounted to 191.97 million baht, almost all of which was devoted to health services and prevention of diseases.

Present and Future Problems

The Programmes envisaged in the First and Second Plan have not yet been fully implemented due to administrative and technical problems. The obstacles to completely successful implementation can be summarized as follows:

1. **Administrative problems:** The main problems are:

(a) The activities of each department and division of the Ministry of Public Health can further be improved by eliminating duplication of work, by better coordination and utilization of manpower, money, and equipment.

(b) Coordination and cooperation between Government agencies, particularly at the municipal level, is not yet sufficiently organized both at the central and local levels. Especially at the local level, cooperation and coordination seem to work out smoothly if the physician in charge of the municipal work is also the provincial health officer.

(c) There are no definite and adequate arrangements to assign medical personnel according to demand. The ratio between physicians and population in the distant rural areas is thus disproportionally low.

(d) There is insufficient communication between private medical practitioners and the Government. If their activities were better coordinated prevention and control of diseases would be more efficient.

2. **Technical Problems**

(a) **Directly concerned with diseases:** After consideration of the data on the cause-specific death rate 1/ and the number of patients admitted in 60 regional hospitals 2/ and 9 hospitals in Bangkok and Thon Buri, it may be concluded that various diseases are a public health problem. Their priority is as follows:

(1) Certain diseases of early infancy and ill-defined diseases of children under 1 year of age, and diseases of pregnancy, childbirth and postpartum.

(2) Diseases of the digestive system.

(3) Tuberculosis.

(4) Malaria.

1/ From Public Health Statistics Report, Thailand; Division of Vital Statistics.

2/ From Statistics of Medical Services Department, Ministry of Public Health.

(b) **Factors involved in aggravating the severity of diseases**

(1) The rapid increase of population, at a rate of 3.1 per cent annually (one of the highest birth rates in the world).

(2) Most of the people in rural areas lack knowledge and understanding of disease prevention methods and are likely to neglect and ignore hygiene and health building practices.

(3) People do not cooperate with the various Government health projects and lack a sense of participation in those projects.

3. **Operational problems:**

(a) Several programmes for communicable disease control and health promotion in rural areas are at present conducted as single projects, thus causing an excessive waste of money, time, and manpower. They should not be operated as specialized campaigns and should become the responsibility of the general health services as soon as possible.

(b) Consideration should be given to ways and means of improving the existing prevention programmes, especially by increasing the number of health centres and enabling them to offer better services to people in the remote rural areas, and by improving at the same time the efficiency of personnel.

(c) Improvement of medical care. The provincial hospitals, particularly, should provide efficient medical care, comparable to that available in the central area.

(d) The inadequate number of personnel in various categories is the major problem in both preventive programmes and medical care, and is the major obstacle to the expansion of the services. Therefore, training of more physicians, nurses, midwives, health workers, as well as paramedical personnel, should be encouraged.

(e) Improvement of activities in health education to enable the people to better understand and cooperate more readily with public health activities.

(f) Transfer of the allocated budget is not in accordance with the time schedule and programme. Several projects cannot proceed as planned. As actual expenditures for a given project in any fiscal year will only be about 70 per cent of the allocated budget, it should be possible to shift a substantial amount of budget for the development of other projects.

Objectives and Policies

1. **Objectives:** Better administration of public health activities in order to achieve better coordination between planning at the national, regional and provincial levels, and expand the existing areas of planning to cover local public health activities. This should lead to a maximization of the resources available and to a more efficient division of those resources between preventive programmes and medical care, including studies and research work, in order to cope with the ever increasing requirements of the population in all regions.

2. **Public Health Policy:** The Government will encourage and support public health activities and will expand these activities in conjunction with the overall expansion of the economy. This will be achieved by improving the efficiency and scope of the existing programmes throughout the Kingdom in order to enable the whole population, and in particular the people living in remote rural areas, to benefit to the utmost from the services available. Maximum and most efficient utilization of manpower, facilities, equipment, and financial resources should be aimed at. Policy emphasis will be as follows:

(a) Mother and child care, family planning, communicable diseases control and eradication, and improvement and expansion of medical care.

(b) Development of environmental health, integrated health services, and solution of the problems of personnel shortage.

(c) Community psychology and mental health.

(d) Public participation.

Guidelines in Public Health Development

1. Mother and Child Care and Family Planning Programme

(a) Prenatal, natal and postnatal care, as well as disease prevention and health education programmes for infants, pre-school and school children.

(b) Family planning programmes, particularly aimed at low income groups to help them determine the number and spacing of their children. By the end of this Plan period (1972-1976) these programmes should have helped to lower the birth rate by about 0.5 per cent.

(c) Nutrition Programmes:

(1) Encourage the consumption and production of low cost, high protein foods.

(2) Improve nutrition, especially of pre-school children in rural areas, by establishing nutrition centres.

(3) Improve nutrition of school children through cooperation with concerned official institutions in setting up nutrition projects in schools.

(4) Control of various categories of malnutrition, including the relief or elimination of simple goitre.

2. Control and Eradication of Communicable Diseases

(a) Eradication of some communicable diseases which can be controlled by specific and effective measures. Prevention programmes can also reduce the mortality rate and keep under better control other communicable diseases for which there are as yet no really effective cures or prevention.

(b) Undertake epidemiological activities and improve the effectiveness of medical and public health laboratories.

3. Improvement and Expansion of Medical Care

(a) Encourage the improvement of medical services, especially in rural areas. Increasing the number of various categories of personnel, medical equipment, and drugs will result in more and better services to outpatients.

(b) Find ways to convince people of the value of good medical care (medical workers in rural areas — establishment of regional hospitals in every region and in major or densely populated provinces — specialists in all fields in the hospitals.)

(c) Improve facilities by increasing the number of hospital beds during the Plan, as follows:

— General hospitals in central area — increase by 850 beds.

— General hospitals in local areas — increase by 5,000 beds.

— Hospitals under municipal control — increase by 550 beds.

— Health centres — increase by 800 beds.

— Other institutions — increase by approximately 1,800 beds.

(d) Increase number of physicians, nurses, and practical nurses, by 1,850, 7,595 and 5,200 respectively.

4. Development of Environmental Health

Improvement of the environmental conditions which may be detrimental to the people's health, particularly food, water, air, including prevention of pollution from chemicals and radioactivity ,as follows:

(a) Study and plan for programmes to eliminate toxic substances detrimental to the health of the people, in collaboration with the agencies concerned .

(b) Keep the people informed about the damaging and dangerous effects of toxic substances, so that they can participate in solving common problems.

(c) Improve medical and research work.

(d) Strengthen laws and regulaions, and expand enforcement by public health personnel.

5. Integrated Health Services

(a) Coordinate all public health activities such as health promotion, disease prevention programmes, and medical care, through the expansion of services in health and midwife centres so as to enable them to reach more people (50,000 persons for each first class health centre, 5,000 persons for each second class health centre, and 2,000 persons for each midwife centre).

(b) Encourage the integration of various specialized campaigns, such as the Malaria Eradication Project, the School Health Project, the Leprosy Control Project, the Family Planning Project etc., within the general health services.

(c) Take steps towards more effective coordination among institutions providing medical care and disease prevention.

6. Solving of Personnel Shortage Problem

(a) Support and encourage training of more qualified personnel in all categories. Consideration should be given to the creation of new categories of personnel, such as health administrators, technicians somewhere between physician and nurse, etc. in order to remedy the lack of qualified technical staff.

(b) Transfer to rural areas, where there is an acute shortage, of qualified technicians, some of the manpower at present concentrated in the metropolitan areas, To encourage this living conditions and security will have to be improved, and incentives provided such as further training, better promotion prospects, etc.

(c) Persuade private medical practitioners to cooperate with the Ministry of Public Health in the development of public health activities.

7. Psychological and Mental Health

(a) Provide mobile units to offer psychological services to the people in rural areas.

(b) Organize psychological units in all regional general hospitals. .

(c) Establish psychological centres in every region.

(d) Increase the number of beds in mental hospitals throughout the country, to a total of 2,000 beds.

8. Public Participation

Encourage the expansion of health education activities by integrating the various health education projects and by enlisting the support of the different mass communications media.

Measures to facilitate the efficient operation of the programmes

In order to achieve a smooth and efficient operation of the policies and programmes the following improvements and changes are advisable:

1. Coordination of national, regional, and provincial health planning in order to avoid duplication and to ensure the most efficient use of resources.

2. Revise and improve the administrative structure and organization of personnel.

3. Improve personnel efficiency through:

(a) Orientation and refresher courses to enable personnel to carry out the Plan objectives.

(b) Organise a supervisory system in order to ensure that operations are carried out at all level in accordance with the Plan.

4. Enlist the help of training institutions for laying out guidelines for the expansion of training in order to meet the demand for qualified staff in the field of medicine and public health.

5. Revise and modernise various public health laws. Enactment of new laws should also be considered if necessary.

Targets and Budget

1. **Common targets.** The objective of the Plan in the field of public health is to expand and support medical care and prevention programmes, including research and studies. During the Third Development Plan the targets for training of various categories of personnel are as follows: 1,850 physicians, 7,562 nurses, 5,200 practical nurses, and 2,950 midwives. The planned increases in the number of hospital beds and health centres are as follows: 11,000 hospital beds, 80 first class health centres, 1,276 second class health centres, and 1,000 midwive centres. The details are shown in Table 15.2.

The ratio of physicians, nurses, and hospital beds to population will be improved from 1 : 6,569; 1: 2,195 and 1 : 1,691 at the end of the Second Plan period to 1: 5,806; 1: 1,775 and 1: 1,340 by the end of the Third Plan period. The details are given in Table 15.3.

2. **Budget allocation for Public Health.** During the Third Development Plan, budget allocated to development of Public Health is 5,500 million baht (this does not include the reserved projects in the amount of 166.92 million baht). Also available are assisted funds of the municipalities for Public Health, foreign financial assistance, and other Public Health budget allocations through the Office of Accelerated Rural Development, in the amount of 32.50; 840.00; and 160.58 million baht respectively. Therefore the Public Health budget totals 6,700 million baht during the Third Development Plan period. The details are shown in Table 15.4.

Public Health Development

1. Health and Sanitation

(a) Improvement and Expansion of Health Centre

(1) Construction: In 1971 there are 290 first class health centres (57 units belong to the municipalities), 1,936 second class health centres, and 2,003 midwife centres in the country.

During the period 1972-1976 improvement and expansion of the first class health centres will be carried out. In 1972-73 it is planned to establish 10 first class health centres per year. In the following years 20 first class health centres will be established annually. It is also planned to renovate 2 existing first class health centres in the first year, 8 in the second year, and 10 annually in the following years.

In the first year 162 second class health centres will be constructed, 286 in the second year and 276 centres will be built annually in the following years. Renovation of 30 existing second class health centres in the first and second years, 50 in the third year, and 50 centres in the following years is also planned.

Two hundred midwife centres will be constructed annually and 30, 40, 50, 60 and 70 existing midwife centres will be renovated in the period 1972-1976.

Provided that programmes are carried out as planned, by the end of 1976 there will be a total of 313 first class health centres, 3,212 second class centres, and 3,003 midwife centres offering services to approximately 60 per cent of the population in rural areas, or about 25 million people.

As regards the special first class health centres, only one of which is already operating in Fang District, it is intended to set up four more such centres during the Third Plan period at the following locations: Ban Phai, Lom Sak, Hua Hin and Pak Chong. Two criteria were taken into consideration in selecting these sites:

a. The district has a population exceeding 100,000.

b. The district is distant from the provincial hospital and road communications are bad.

(2) **Operation:** Improve methods of operation and promote fuller utilization of the health centre facilities.

a. Expand the scope of medical care in the first class health centres to meet the requirements of the people and to relieve some of the burden on the hospitals. Thus, training courses, especially in emergency surgery, will be conducted for physicians at the first class health centre, and additional training in medical care will be provided for nurses, health workers, and midwives to improve their knowledge of local diseases and to enable them to give medical care within their scope.

b. Increase the case-load of health centres. Specialized campaigns are expected to be included in the activities of health centres according to the integrated health service plan. Six such special projects are expected to be implemented during the Third Development Plan period, i.e. malaria, tuberculosis, leprosy, school health, family planning and rural nutrition.

c. Increase the number of health centre staff to be consistent with the increasing case-load, i.e. the first class health centre personnel will increase from 9 to 15, the second class health centre from 2 to 3. An ambulance will be available for each first class health centre, to transport patients between hospitals and health centres, and more medical equipment and various categories of drugs will also be provided according to the needs.

(b) **Family Planning Project:** Family planning will be promoted by providing information and assistance to those who request it. It is hoped that by the end of 1976 the population growth rate will be reduced to 2.5 per cent per annum from the present growth rate of 3.1 per cent, which is an obstacle to the socio-economic development of the country.

Family planning programmes include distribution of contraceptive pills and IUD devices, and sterilization. During 1972-1976 services in 71 provinces will reach an average of 370,000 persons, as well as offer maintenance services to 500,000 on the average. Approximately 10 studies and surveys of family planning will also be conducted. These services will be provided through 84 provincial hospitals, 4 mother and child care centres, 43 provincial health centres, 157 first class health centres (doctor on the staff) and by 3,254 other institutions.

(c) **Mother and Child Care:** There are present three mother and child care centres at Yala, Khon Kaen and Ratchaburi, and two midwife schools at Lampang and Vachira Hospital which can train 460 midwives per year.

During the Plan period, the expansion of mother and child health services will be continued in an effort to reduce mother and children mortality rates. The construction of the mother and child health centre at Chiang Mai will be completed, and new mother and child health centres will be built at Chon Buri and at Muang Phon. Moreover, 2,450 midwives will be trained during the Plan period, training of 250 nurses will be financed by the Health Department, as well as refresher training for 200 midwives annually.

Mother and child health centres will be able to offer various services to 35,000 pregnant women, make 9,700 deliveries, and 21,000 medical examinations of children.

(d) Nutrition, Treatment of Malnutrition and Rural Nutrition Project

It is intended through education campaigns to inform the public of the importance of sound nutrition. During the Plan period 47 units will be set up to deal with malnutrition diseases, an attempt will be made to control goitre in the areas where it is prevalent and research work will be undertaken to find ways to remedy such problems as Vitamin A deficiencies, berri-berri and anemia.

As regards nutrition in rural areas, the programme will be expanded to cover all 71 provinces. 75 nutrition centres for pre-school children will be established each year, reaching a total of 275, in an attempt to solve the nutrition problems of that age group which are regarded as of high priority. Moreover, it is hoped that these centres will help people to understand the value of sound nutrition and encourage them to cooperate in the organization of such centres for school age children. Experiments in cheap and nutritious lunch programmes at the primary school level will be carried out in cooperation with the Ministry of Education and Provincial Administrative Authorities. The objective of this experiment is to come up with information and guidelines useful to the institutions concerned with the carrying out of such programmes. It is intended to carry out one such test programme in one province each in the South, Northeast, and Central Regions.

(e) Provision of Potable Water in Rural Areas throughout the Country (Rural WaterS upply System)

To date 269 rural water supply systems in 53 provinces (1961-1970) have been constructed, and approximately 750,000 persons have benefited from this service.

To help solve the problem of insufficient water (in particular potable water) in households in rural areas, various water supply system will be constructed during the plan period throughout the country. Approximately 80 to 100 water supply systems will be set up annually, reaching each year not less than 200,000 persons or about 200 villages. The criteria for the construction of such water supply systems will be as follows: the village has a population of not less than 500; a natural source of water is available but is too distant from the community; the population wants the water distribution system and the community is prepared to cooperate by providing material and labour as far as their resources allow.

(f) Rural Health Development: Programmes initiated during the Second Plan period will be continued. The objective is to reduce both the number of people suffering from gastro-intestinal and parasitic diseases and the number of deaths due to these diseases. With the participation of the public it is intended to provide sanitation services to people in rural areas and to increase their standard of living and welfare. During the Third Plan period more health promotion programmes will be carried out, covering eventually a total of 12,900 villages, with a combined population of 6.45 million. Each year, 103,240 sanitary toilet facilities will be installed. Programmes aimed at the elimination of intestinal parasitic diseases will be carried out in 300 village and 1,500 small scale water supply systems will be installed.

2. Diseases Control and Prevention

(a) Prevention of Communicable Diseases. During this Plan period a serious attempt will be made to control communicable diseases which can be prevented by effective measures. It is also intended to control, as much as feasible, communicable diseases for which there is as yet no effective prevention possible.

(1) Immunization against Communicable Diseases:

Vaccinate approximately 6.18 million persons annually against smallpox (newborns, pre-school children, and persons vaccinated more than 3 years ago). Vaccinate before the start of the hot season approximately 4.2 million persons, or 60 per cent of the population, against cholera in the provinces where outbreaks have been occuring, vaccinate approximately 1.03 million people annually against diphtheria, pertussia, and tetanus (infants and children under 5 year of age), vaccinate approximately 64,000 persons annually in Bangkok against poliomyelitis and vaccinate annually against typhoid in 15 provinces in the Northeast.

(2) Disease Control and Preventive Measures

Efforts will be focussed on various diseases, namely zoonosis, intestinal parasitic diseases, plague, diseases brought in from other countries, hemorrhagic fever, and liver fluke.

(3) Treatment of Communicable Diseases: Provide hospital beds to the communicable disease hospital, to total 350 beds.

(b) National Malaria Eradication Programme

Improvements to this programme are being considered so that it will be consistent with the socio-economic expansion of the country. This new plan will be from 1971 onwards. During the Plan period the measures envisaged are as follows: one round of insecticide spraying per year in areas where endemic malaria is not widespread; two rounds of insecticide spraying in area where the disease is more widespread, new settlements and border areas. In malaria free areas the disease will be treated on a case by case basis by the general health services.

It is expected that the number of residents of malaria free areas will be 5.58 million in 1972, 13.29 million in 1973, 17.35 million in 1974, 23.02 million in 1975, and 29.39 million by the end of the Plan period in 1976.

Medical Care Services

1. Improvement of Provincial Hospitals

Improvement of the eighty-four general hospitals in regional areas (68 provincial hospitals and 16 district hospitals, totalling approximately 15,800 beds, 645 physicians, and 2,009 nurses) will be carried out. During the Plan period medical care services are to be made efficient and effective by increasing various categories of personnel, medical equipment, and various categories of drugs. The number of hospital beds will be increased by approximately 5,000. Personnel increases will include 100 physicians, 2,220 nurses, and 2,250 practical nurses. This expansion programme will enable hospitals to treat an average of approximately 4.1 million out-patients per year and 920,000 in-patients.

2. Establishment of Regional Hospitals

The big regional hospitals will be improved so that they can be used as training centres for physicians and other technical staff. Hospitals to be established as regional hospitals during the plan total 14, namely Photachinaraj Hospital (Phitsanulok), Sapasithiprasong Hospital (Ubon), Nakhon Ratchasima Hospital, Songkhla Hospital, Lampang Hospital, Khon Kaen Hospital, Chon Buri Hospital, Yala Hospital, Sawanpracharak Hospital (Nakhon Sawan), Chaopraya-Abhaibhubet Hospital (Prachin Buri), Ratchaburi Hospital, Chaoprayayomraj Hospital (Suphan Buri), Nakhon Si Thamarat Hospital and Chumphon Hospital.

The standards for these hospitals will be as follows: physician/nurse/bed ratios equals 1/4/10; more than 200 beds; as many specialists as possible in various fields; adequate equipment both for treatment and laboratory work.

Training of various categories of personnel

1. Nursing College; Nurse and Midwife School, and Practical Nurses School (Operated by the Department of Medical Services)

The Nursing College will train 40 teaching nurses annually for one year training curriculum up to 1974, when the curriculum will be modified to provide two years training, the first 70 teaching nurses to graduate in 1975. Thus during the Plan period a total of 260 additional teaching nurses will be available.

There are at present seven schools for nurses and midwives and another one will be established in Lampang in 1976. During the Plan period it will be possible to train a total of 917 undergraduate nurses and midwives (basic education M.S. 3) and 1,410 graduate nurses and midwives (basic education M.S. 5).

There are at present six schools of practical nursing. During the Plan period five additional schools will be established to train a total of 2,300 practical nurses.

2. Training of Health Department Personnel

It is planned to augment the number of health personnel, health workers, practical nurses, dental hygienists, as follows:

(a) **Health workers:** Approximately 500 health workers will be trained annually (400 to be assigned to the Health Centres and another 100 to other institutions). A total of 2,500 health workers will become available during the Plan period.

(b) **Practical nurses:** There is at present one school for practical nurses, under the Department of Health, in Nonthaburi. During the Plan period three additional schools for practical nurses will be established. A total of 800 practical nurses will become available.

(c) **Dental hygienists:** During the Plan 100 dental hygienists will be trained and expansion of the existing school will be carried out.

(d) **Training work:** Additional training for 50 district health officers, for 50 supervisory health workers, and refresher training for 40 physicians and for about 240 health workers per year.

3. Training of Laboratory Technicians

To meet the requirements of medical and related laboratories the following schedule for the training of technicians is envisaged:

One year curriculum:	30 graduates per year, approximately.
Two year curriculum:	20 graduates per year, approximately.

Cytologists — 2 year curriculum — 10 graduates per year, approximately.

4. Training of Staff for Dermatology Institute

Training in dermatology for various categories of staff as follows: 40 internists per year, training of 34 residents from 1974-1976, one year postgraduate courses for 15 technicians from 1973, and in 1976 training of 15 nurses and 5 laboratory technicians.

Public Health Analysis and Research

1. Improvement and Expansion of Medical Analysis and Research Work.

The aim of this project is to improve and expand research and medical analysis in order to make prevention work more effective and to improve the quality of medical care. This will be achieved through quality controls and analysis of drugs, biological substances, food and beverages, to ensure that they meet established standards. Approximately 90,000-130,000 specimens will be tested for diagnostic purposes, 1,200 samples will be tested in connexion with the research carried out on Thai medicinal herbs. Analysis of 3,500-5,500 samples of biological material and toxic substances per year will be conducted, and 9,000-13,000 samples of food, water and other beverages will also be analyzed annually. Biological research on insects transmitting diseases will account for about 40,000 samples per year. Medical research will cover about 18 subjects per year.

In order to improve research 50 virologists will be trained annually.

2. **National Medical and Public Health Laboratory Services.**

Medical and public health laboratory activities will be integrated into ~~regional~~ areas, under the administrative control of the Department of Medical Sciences in order to make them more effective and expand services to all provinces. Nine regional and 58 provincial laboratory centres will be established by the end of this Plan period.

As regards personnel, 22 additional scientists must be made available as well as 205 additional laboratory technicians by the end of this Plan period.

Production and Provision of Drugs

1. Improvement and Expansion of Government Pharmaceutical Organization

Encourage pharmaceutical production by continuing the production of several categories of drugs; improve machinery, equipment and production methods. It will thus be possible to meet the requirements of modern medical techniques and also to improve shipping, analysis, and quality control.

The production of several categories of drugs will be expanded as follows:

a. The Government production of pharmaceutical drugs will be doubled by the end of this Plan period.

b. Expensive drugs and those in high demand will be produced locally and prices regulated by law.

c. The production of important categories of vaccine will be encouraged in order to meet the requirements of the country.

d. Drugs and production of chemical compounds derived from raw materials available locally and which have been analyzed and researched by the Applied Scientific Research Corporation of Thailand and the Government Pharmaceutical Organization, will be produced. Eleven additional products (totalling 22) will be manufactured during this Plan period for medical and pharmaceutical proposes. These chemical compounds will be used to produce 9 more categories of drugs, therefore totalling 20 categories.

Following the Government's policy to help people to buy expensive drugs the Government Pharmaceutical Organization will sell products which it produces itself or buys from private firms at a very low price, in order to relieve the Government's budget burden and to stabilize drug prices on the market.

Major Problems and Future Trends

Future public health development planning should extend its scope to include the public health work of all Government agencies, municipalities, other organizations and of the private sector. To date, planning has only encompassed projects carried out under the Ministry of Public Health, although in the Third Plan an attempt has been made to cover as well activities at the municipal level and of the Office of Accelerated Rural Development. But there are no policy guidelines for the private sector, particulary as far as medical care is concerned. It is suggested, therefore, that in the future the Government should encourage the private sector to participate in the expansion of public health services, and produce pharmaceutical products at reasonable price in order to relieve the Government of some of its burden. The Government should enforce strict rules and regulations as regards the activities of the private sector: e.g. investments, personnel, service charges, safety, etc.

The major obstacle to public health development is still personnel shortage, especially physicians and nurses in the rural areas. The ratio of physicians to population in the Bangkok-Thon Buri area is 1 to 1,400. It is 1 to 10,000 in rural areas. Even there, physicians, especially private practitioners, tend to be concentrated in towns and the lack of medical care in remote areas is acute. The Government will try to solve the problem with mobile medical units, but this is only a short-term remedy as well as a very expensive one. The Government should therefore aim at a long-term solution.

1. Train more doctors, in proportion to the population. Take steps to assign sufficient numbers of physicians to the agencies responsible for sending doctors and other medical staff to the rural areas, so that these agencies will be able to provide adequate medical care for the rural population. Special subsidies should also be envisaged for compensating doctors who are unable, because of their assignment, to augment their income through private practice.

2. It is anticipated that there still will be a shortage of nurses even if the Third Plan targets for nurses training are achieved. The main problem will be to encourage nurses to remain, rather than leave the profession or going to work abroad. The same incentives envisaged for doctors could be made available to nurses, e.g. special allowances and incentives for working in remote areas. Ways to employ, on a part time basis, the large number of nurses not in Government services should also be considered.

3. As for non-professional staff, it is necessary to train additional practical nurses, health workers, and dental hygienists, since it is the category of personnel which will be most needed to assist physicians and nurses in the rural areas.

4. The Civil Service Commission should be particularly concerned with proper assignment of personnel. At a time when there is an acute shortage of a certain type of medical personnel, they should not be assigned to jobs which could just as well as carried out by others. At present, public health institutions chiefs are mostly physicians and are burdened by excessive administrative duties. Nurses or health workers work as accountants or clerks. The Government should, therefore, through the Civil Service Commission, review the nature and extent of the work of the public health institutions in order to put the right men in the right jobs.

The scope of the Government public health services is widening both because of the population growth rate and because of the wider variety of programmes (e.g. family planning, pollution control). The budget requirements have therefore increased more rapidly than in the past. The Government should, in the future, create model services, much as a pilot medical insurance project, free medical care for lower income groups, and more convenient and complete public health services.

In order to control the present trend of vast number of people migrating from the rural areas to avail themselves of better services, medical care in rural areas should be improved, both quantitatively and qualitatively. It should match the standard of medical care in the central area, and improvement of techniques and equipment especially should be stressed. Specialists in various fields should also be available. The standardization of local hospitals, should be encouraged and the long-term improvement programmes should be consistent with the projected population increase.

In the next period of public health development, projects concerned with integration of specialized campaigns, activities of health centres and improvement of various hospital should be completed as quickly as possible in order to solve the problem of duplication, with its consequent waste of staff and resources. During the Third Plan period the integration of specialized campaign activities with health centres will be partly completed. In the next Plan health centres and hospitals should be improved so as to be ready for phasing in various specialized projects such as mobile medical and health units, malaria eradication programmes, leprosy control programmes, health development, tuberculosis control, school hygiene, rural nutrition, family planning and other projects.

It is of the utmost importance to work out the integration planning in close cooperation with the staff in charge of hospitals, health centres, and the specialized campaigns.

Medical analysis and research should be encouraged. There are large numbers of well qualified technicians in this field, but the Government has never given enough support to this kind of work, which has, so far, largely depended on foreign assistance. The Government should, therefore, in the next Plan period, strongly encourage technicians in these fields, through provision of budget and manpower, as well as publish the results of their work. The latter would enable all those interested to benefit from the work carried out and would improve the quality of preventive and medical care.

Even though, by the end of the Third Plan period the population growth rate should be stabilized at 2.5 per cent, it will still be very high compared to that in other countries and will remain an obstacle to the economic development of the country. Therefore, the Government should,in the future, continue to support and further expand family planning programmes and set a definite limit on the population growth rate in the interest of the economic and social development of the country.

Major public health problems in the next Plan period will tend to become more and more troublesome and complex. The trend should be towards more cooperation among various agencies for the solution of such problems as water pollution by industrial plants, and home sewage, air pollution by industry and motor vehicles. These problems should be the joint concern of the Ministries of Public Health, Industry, Communications and Interior as well as of Municipal Authorities. Nutrition and school health problems should be solved through cooperation and coordinated activities of the Ministries of Education, Public Health, Agriculture, Interior and the Municipal Authorities. The various agencies concerned will also have to cooperate and coordinate their efforts to provide potable water in rural areas.

The Ministry of Public Health alone cannot cope successfully and effectively with such lareg scale problems as those mentioned above. The Government should, therefore, agree that these problems should be jointly considered by the Government agencies concerned and assign to one agency the task of coordinating planning, and implementation, solution and prevention.

TABLE 15-1

Evaluation of Public Health Development

First and Second Plans

Classification	Evaluation of Work in First Plan		Targets and Evaluation of Work in Second Plan										Total Increase Second Plan	
			1967		1968		1969		1970		1971			
	1960	1966	Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement	Targets	Achievement
Physicians[1]/	2,600	4,100	4,350	4,350	4,600	4,600	4,850	4,850	5,120	5,120	5,444	5,550	1,335	1,450
Nurses[2]/	8,280	11,880	12,550	12,663	13,255	13,491	14,065	14,060	14,875	15,488	15,710	16,638	3,830	4,758
Midwives	560	1,400	1,700	1,700	2,020	2,020	2,390	2,390	2,800	2,800	3,210	3,260	1,810	1,860
Practical nurses[3]/	2,799	3,020	—	3,400	—	3,200	—	3,700	—	4,300	—	5,170	—	2,150
Hospital-beds[4]/	10,095	15,400	16,300	16,650	17,300	18,000	18,300	18,350	19,300	20,550	20,300	21,600	4,900	6,200
1st class health centres	147	217	227	236	237	254	247	269	257	278	267	290	50	73
2nd class health centres	666	882	1,032	936	1,182	996	1,332	1,324	1,482	1,835	1,632	1,936	750	1,055
Midwife centres	756	1,403	1,688	1,486	1,937	1,638	2,258	1,730	2,543	1,887	2,824	2,003	1,425	600

1/ Physicians from all institutions.

2/ Nurses supplied from all institutions.

3/ Practical nurses supplied from all institutions.

4/ Hospital-beds of all state civilian hospitals.

5/ Including municipal health centres.

TABLE 15 - 2
Targets of the Third Development Plan

Item	1971	1972	1973	1974	1975	1976	increase
Physicians[1]	5,550	5,920	6,290	6,660	7,030	7,400	1,850
Nurses[2]							
— Basic Nurses	16,638*	17,890	19,300	20,800	22,470	24,200	7,562
— Post Nurses	—	760	1,530	2,840	4,400	6,100	6,100
Practical nurses[3]	5,171*	6,011	6,951	7,941	9,081	10,271	5,200
Midwives[4]	3,260*	3,770	4,380	4,970	5,580	6,190	2,950
Hospital - bed[5]	21,600*	23,800	25,900	28,000	30,100	32,200	11,000
First class H.C.	290	300	310	330	350	370	80
Second class H.C.	1,936*	2,096	2,388	2,660	2,936	3,212	1,276
Midwife Centre	2,003*	2,203	2,403	2,603	2,803	3,003	1,000

* Commulative number from the First and Second Development Plans.

[1] Physicians to be trained in all institutions.

[2] Estimated number of nurses to be trained in all institutions.

[3] Estimated number of practical nurses to be trained in 19 institutions, excluding those from the Irrigation Department.

[4] Trained by Department of Health.

[5] From all institutions.

[6] Including another 47 municipal health centres.

TABLE 15-3
Ratios of Physician, Nurses Hospital-Bed to Population: Third Plan Targets

Item	1971	1972	1973	1974	1975	1976
Physicians/Population	1:6,569	1:6,420	1:6,229	1:6,066	1:4,925	1:5,806
Nurses/Population	1:2,195	1:2,126	1:2,031	1:1,944	1:1,855	1:1,775
Beds/Population	1:1,691	1:1,655	1:1,520	1:1,450	1:1,390	1:1,340
Physician/Nurse/Bed	1:2.9:3.8	1:3.00:3.9	1:3.08:4.0	1:3.11:4.1	1:3.19:4.2	1:3.28:4.3

Remark :

1. Physician : Nurse : Practical Nurse : Bed according to the standards set up by the Ministry of Public Health is 1:7:5:10
2. Population used in this estimation derived from that of the Family Planning Project as follows

1972	38.06 million
1973	39.24 million
1974	40.46 million
1975	41.71 million
1976	43.01 million

TABLE 15 - 4
Budget Allocation for Public Health

(million baht)

Sourse	1972	1973	1974	1975	1976	Total
1. Regular Government Budget						
1.1 Ministry of Public Health	834.80	1,049.79	1,132.21	1,202.44	1,280.66	5,500*
1.2 Outside the Ministry	27.67	29.24	32.04	34.42	37.21	160.58
2. Other categories of budget						
2.1 Assisted fund of the Government hospitals	—	—	—	—	—	—
2.2 Assisted fund of the municipalities for public healths	6.62	5.94	6.30	6.68	7.00	32.50
2.3 Assisted fund of the Private hospitals	—	—	—	—	—	—
2.4 Foreign financial assistance	168.00	168,00	168.0	168.00	168.00	840.000
Total	1,037.09	1,252.97	1,338.65	1,411.50	1.492,87	6,533.08

* Besides the budget to be allocated in the Third Pan, there are still reserved projects in the amount of Bht. 166.92 million. Therefore the total amount of the Public Health budget is Bht. 6,700 million during the Third Development Plan period.

APPENDIX
TABLE 15 - 5. A
Details of Budget and Projects
Development Budget of Public Health Sector
To be Allocated from Government Budget
(1972 — 1976)

(million baht)

Expenditive Categories	1972	1973	1974	1975	1976	1972-76
1. Health and Sanitation	254.36	351.57	392.64	421.71	452.05	1,872.23
2. Disease Control and Preventive Measures	158.74	190.64	194.62	195.53	200.62	940.15
3. Medical Care Services	362.53	430.00	475.00	511.00	548.00	2,326.53
4. Training of Various Categroies of Personnel	37.57	51.00	41.00	44.00	49.00	222.57
5. Public Health Analysis and Reserch	21.60	25.58	28.05	30.30	32.89	138.42
6 Production and provision of Drugs	—	—	—	—	—	—
Total	834.80	1,048.79	1,131.31	1,202.54	1,282.56	5,500.00*

*** Besides the Development Budget to be given in this Plan, there are some reserved projects in the amount of 166.92 million baht, which should be supported, in case the country's finance should improve and through other Public Health budget to be allocated through the Office of Accelerated Rural Development, in the amount of 160.58 million baht.**

TABLE 15-6. A

Total Development Budget of Public Healths Divided by Sources of Fund 1972 — 1976

(million baht)

Sources of Fund	Total (1972-1976)
Government Budget*	5,500.00
Assisted Fund of the Municipality for Public Health	32.50
Foreign Financial Assistance	840.00
Public Enterprise Income	—
Total	6,372.50

* Besides the Development Budget to be given in this Plan, there are some reserved projects in the amount of 166.92 million baht which should be supported should the country's finance improve and through other Public Health budget to be allocated through the Office of Accelerated Rural Development in the amount of 160.58 million baht.

TABLE 15 - 7. A

Development Budget of Public Health

(million baht)

Categories/Projects	1972		1973		1974		1975		1976		Total		Remark
	Actual Fund	Reserved Fund	A/F	R/F	A/F	R/F	A/F	R/F	A/F	R/F	A/F	R/F	
Ministry of Public Health **Health and Sanitation**	254.36	8.44	351.57	17.01	392.64	15.25	421.71	19.17	45205	23.73	1,872.33	83.60	
1. Strengthening of Rural Health Services Project	162.26	—	235.29	—	264.39	—	286.12	—	306.23	—	1,254.29	—	
2. Family Planning Project	10.00	—	12.50	—	15.00	—	18.00	—	20.00	—	75.50	—	
3. Maternal and Child Health Project	29.49	—	32.00	—	35.00	—	32.00	—	34.00	—	162.49	—	
4. Food Promotion Project	3.24	—	4.28	—	4.99	—	5.76	—	4.46	—	22.73	—	
5. Rural Water Supply Project	25.40	—	35.00	—	40.00	—	45.00	—	50.00	—	195.40	—	
6. Community Health Development Project	22.28	—	25.40	—	27.90	—	29.00	—	31.00	—	135.58	—	
7. Food, Drug, Narcotic, and Poisonous Substance Control	—	5.77	—	—	—	9.25	—	12.33	—	15.94	—	50.71	
8. Improvement and Expansion of Health Education Project	—	2.48	—	—	—	4.69	—	5.46	—	6.37	—	25.90	

(million baht)

Categories/Projects	1972		1973		1974		1975		1976		Total		Remark
	Actual Fund	Reserved Fund	A/F	R/F	A/F	R/F	A/F	R/F	A/F	R/F	A/F	R/F	
9. Food Sanitation Project	—	0.19	—	2.69	—	1.31	—	1.38	—	1.42	—	6.99	
10. Water Pollution Control Project	1.03	—	2.10	—	2.20	—	2.30	—	2.40	—	10.03	—	
11. Occupational Health Project	0·66	—	5.00	—	3.16	—	3.53	—	3.96	—	16.31	—	
Disease Control and Preventive Measure	158.74	5.37	190.64	6.17	194.62	6.78	195.53	7.37	200.62	7.80	940.15	33.49	
1. Communicable Diseases Control Project	15.10	—	24.88	—	26.91	—	27.32	—	30.21	—	124.42	—	
2. Malaria Eradication Project	84.00	—	90.00	—	86.00	—	80.00	—	77.00	—	417.00	—	
3. Tuberculosis Control Project	20.03	—	23.10	—	24.10	—	27.00	—	28.20	—	122.43	—	
4. Venereal Disease Control Project	15.43	—	20.00	—	24.00	—	27.00	—	30.00	—	116.43	—	
5. Leprosy Control Project	23.02	—	30.75	—	31.65	—	32.55	—	33.45	—	151.42	—	
6. Filariasis Control Project	1.16	—	1.91	—	1.96	—	1.66	—	1.76	—	8.45	—	
7. Epidemiological Project	—	5.37	—	6.17	—	6.78	—	7.37	—	7.80	—	33.4	
Medical Care Services	362.53	2.00	430.00	13.00	475.00	17.00	511.00	13.00	548.00	4.83	2,326.53	49.83	
1. Project of Improvement of Provincial Hospitals	261.61	—	318.00	—	358.00	—	400.00	—	440.00	—	1,777.61	—	

(million baht)

Categories/Projects	1972		1973		1974		1975		1976		Total		Remark
	Actual Fund	Reserved Fund	A/F	R/F	A/F	R/F	A/F	R/F	A/F	R/F	A/F	R/F	
2. Project of Transform of Women's Hospital to be General Hospital	28.78	—	37.00	—	39.00	—	28.00	—	20.00	—	152.78	—	
3. Project of Improvement and Expansion of Psychological Hospital and Community Health	67.94	—	74.00	—	77.00	—	82.00	—	87.00	—	387.94	—	
4. Project of Establishment Suburban Hospital	—	2.00	—	13.00	—	17.00	—	13.00	—	4.83	—	49.83	
5. Project of Construction of New Hospital	4.20	—	1.00	—	1.00	—	1.00	—	1.00	—	8.20	—	
Training of Various Categories of Personnel	37.57	—	51.00	—	41.00	—	44.00	—	49.00	—	222.57	—	
1. Nursing College	29.11	—	40.00	—	29.00	—	31.00	—	32.00	—	161.11	—	
2. Training of Health Personnel Project	8.46	—	11.00	—	12.00	—	13.00	—	17.00	—	61.46	—	
3. Training of Laboratory Technician Project	—	—	—	—	—	—	—	—	—	—	—	—	
Public Health Analysis & Research	21.60	—	25.58	—	28.05	—	30.30	—	32.89	—	138.42	—	
1. Improvement and Expansion of Medical analysis and Research work.	7.49	—	9.00	—	10.00	—	11.00	—	12.00	—	49.49	—	
2. National Medical and Public Health Laboratory Project	3.30	—	5.00	—	6.00	—	7.00	—	8.00	—	29.30	—	

(million baht)

Categories/Projects	1972		1973		1974		1975		1976		Total		Remark
	Actual Fund	Reserved Fund	A/F	R/F	A/F	R/F	A/F	R/F	A/F	R/F	A/F	R/F	
3. Prevention of Hazard from Radiation Project	1.67	—	1.08	—	0.85	—	0.73	—	0.75	—	5.08	—	
4. Project of Institution of Tropical Dermatology	2.19	—	3.00	—	3.20	—	3.50	—	3.80	—	15.69	—	
5. Research and Treatment of the Addicts	6.95	—	7.50	—	8.00	—	3.07	—	3.34	—	38.86	—	
Production & Provision of Drugs.													
1. Improvement and Expansion of Government Pharmaceutical Organization Project.	—	—	—	—	—	—	—	—	—	—	—	—	
Total	8,34.80	15.81	1,048.79	36.18	1,131.31	39.03	1,202.54	39.54	1,282.56	36.36	5,500.00	166.92	
Project outside the Control of Public Health	27.67	—	29.24	—	32.04	—	34.42	—	37.21	—	160.58*	—	*This amount will be allocated through the ARD, the Ministry of Prime Minister.
1. Mobile Medical Care and Health Team Project	16.83	—	17.90	—	19.18	—	20.26	—	21.53	—	95.70*	—	
2. Training Project for Rural Practical Nurses	10.84	—	11.34	—	12.86	—	14.16	—	15.68	—	64.88*	—	
Grand Total	862.47	15.81	1,078.03	36.18	1,163.35	39.03	1,236.96	39.54	1,319.77	36.36	5,660.58	166.92	5,827.50

TABLE 15-8. A

Development Budget of Public Health

1. Government Budget

(million baht)

Department/Projects	1972	1973	1974	1975	1976	Total
Ministry of Public Health	850.61	1,084.97	1,170.34	1,242.08	1,318.92	5,666.92
Office of the Secretary	93.12	102.33	100.41	97.49	98.50	491.85
1. Malaria	84.00	90.00	86.00	80.00	77.00	417.00
2. Tropical Dermatology	2.19	3.00	3.20	3.50	3.80	15.69
3. Filariasis	1.16	1.91	1.96	1.66	1.76	8.45
4. Food Control*	5.77	7.42	9.25	12.33	15.94	50.71
Department of Medical Services	400.59	490.50	529.00	563.07	593.17	2,576.33
1. Provincial Hospitals	261.61	318.00	358.00	400.00	440.00	1,777.61
2. Nursing College	29.11	40.00	29.00	31.00	32.00	161.11
3. Women's Hospital	28.78	37.00	39.00	28.00	20.00	152.78
4. Psychological Hospital	67.94	74.00	77.00	82.00	87.00	387.94
5. Addicts	6.95	7.50	8.00	8.07	8.34	38.86
6. Sub-urban Hospital*	2.00	13.00	17.00	13.00	4.83	49.83
7. New Hospital	4.20	1.00	1.00	1.00	1.00	8.20
Department of Public Health	344.44	477.06	524.08	562.79	606.50	2,514.87
1. Rural Health Service	162.26	235.29	264.39	286.12	306.23	1,254.29
2. Family Planning	10.00	12.50	15.00	18.00	20.00	75.50
3. Maternal and Child	29.49	32.00	35.00	32.00	34.00	162.49
4. Training of Health Personnel	8.46	11.00	12.00	13.00	17.00	61.46
5. Food Promotion	3.24	4.28	4.99	5.76	4.46	22.73
6. Rural Water Supply	25.40	35.00	40.00	45.00	50.00	195.40
7. Community Health Development	22.28	25.40	27.90	29.00	31.00	135.58
8. Communicable Diseases	15.10	24.88	26.91	27.32	30.21	124.42
9. Health Education*	2.48	6.90	4.69	5.46	6.37	25.90
10. Tuberculosis Control	20.03	23.10	24.10	27.00	28.20	122.43
11. V.D. Control	15.43	20.00	24.00	27.00	30.00	116.43
12. Leprosy Control	23.02	30.75	31.65	32.55	33.45	151.42
13. Epidemiological*	5.37	6.17	6.78	7.37	7.80	33.45
14. Food Sanitation*	0.19	2.69	1.31	1.38	1.42	6.99
15. Water Pollution	1.03	2.10	2.20	2.30	2.40	10.03
16. Occupational Health	0.66	5.00	3.16	3.53	3.96	16.31
Department of Medical Sciences	12.46	15.08	16.85	18.73	20.75	83.87
1. Medical Analysis and Research	7.49	9.00	10.00	11.00	12.00	49.49
2. Rudiation	1.67	1.08	0.85	0.73	0.75	5.08
3. Medical Laboratory	3.30	5.00	6.00	7.00	8.00	29.30

* Reserved Projects in the amount of 166.92 million baht.

CHAPTER 16

EDUCATION

Policies and Objectives of the National Education Development Plan

The sucessful attainment of national economic development depends on several important factors, namely : natural, financial and human resources. Due to the limited amount of capital available, Thailand's development depends largely on the full utilization of human resources. This objective can only be achieved through education and training of the population, in a manner consistent with the country's economic requirements and social structure.

The First and Second Plans attempted to promote meaningful changes in the society and to develop the economy. Education was considered as a form of investment which should result not only in supply of educated and skilled manpower but also of people with a constructive outlook on society as a whole.

The objective of the Third plan is the same. In addition, greater emphasis will be placed on preparing the country to move forward and to effect scientific and technological changes. The basic aims of the Plan are set as follows :

Policies for Educational Development in General

1. To improve education so that it relates to the socio - economic development of the Kingdom and to cultivate among the people a sense of responsibility towards society and the nation.

2. To promote research and studies in science and technology.

3. To promote agricultural studies so as to increase production.

4. To expand and improve compulsory education at both lower and upper Prathom levels to meet the needs of the increasing population in these school age groups. Also to emphasize the expansion of education at the secondary and higher levels to meet the demand for manpower at the middle and higher levels.

5. To increase the number of teachers to meet the demand, and to raise the level of welfare and security of teachers, especially those living in the regions and remote areas.

6. To promote equality in education by improving and expanding education in regional areas. Also to provide education facilities meeting the special needs of each locality, in particular in those areas that present special conditions.

7. To encourage the private sector to take part in organizing education, to an appropriate degree and through suitable means; to find ways to help promote closer cooperation between Government agencies and private institutions.

8. To promote vocational training and non - formal education, with special emphasis on agriculture and training for people in the rural areas, and promote adult education in general.

9. To instill school children with sound moral principles with a sense of discipline, and a better understanding of and pride in their culture and national heritage. Health and physical education will also be pro moted.

Several important projects have been reconsidered and improved, e.g.: The Loan Project to improve Kasetsart University; the establishment of King Mongkut's Institute of Technology and to improve its operation, (teachers, lecturers, materials, and equipment). The aim is to raise the standard of the Institute so then it can train well qualified vocational teachers in trade, industry, and mechanics to meet the demands. At the same time, preparations will be made to improve vocational schools for agriculture and industry with a view to forming a second Loan Project group. During the Third Plan period it is intended to offer a wider curriculum in the regular stream, secondary schools. Consideration will be given to raising the status of all Teacher Training Colleges, both in the Central and Regional areas, to that of Universities. There will be a special project for this purpose. Other projects are: Improvement of the upper primary Prathom level, production and distribution of free textbooks for needy students, training of youth leaders for the rural areas, and adult education, which includes vocational training and non - formal education for youth whose schooling has been interrupted.

Apart from the above mentioned projects, support will be given to other related schemes to maintain the quality and quantity of both school education and non - formal education under proper control of the Government. The projects that will receive greater emphasis during the Third Plan period are: family planning, nutrition in the rural areas, vocational training and the projects concerned wih moral health and physical education.

General Situation and Evaluation of Achievements during the Second Plan (1967 - 1971)

During the Second Plan, national education made progress both in scope and quality There were an improvements at all levels. However, even if the state had been able to expand the number of school children by a total of at least 250,000 students a year, it still could not have met the targets. Therefore, greater efforts must be made during the Third Plan. Attempts have been made to improve the overall educational system and its administrative structure. For the first time, systematic analysis was undertaken to deal with manpower problems, especially in rural areas. Emphasis was placed on the training of qualified personnel to fill manpower requirements at all levels; consequently, efforts were made to increase the number of students in sciences, technology and education. A short summary of the Second Plan can be given as follows :

Primary Education

1. Lower Primary Level (Prathom 1-4). In 1971, there are 4,772,600 students, 3,955,000 or 83 per cent in schools under the supervision of the Dept. of Local Administration; 68,700, or 1.5 per cent, in schools under the supervision of Dept. of Primary Education; 213,900 or 4.5 per cent in municipal schools and 535,000, or 11 per cent in private schools.

2. Upper Primary Level (Prathom 5 - 7). There are a total of 924,900 students; 424,000, or 46 per cent, in schools under the supervision of the Dept. of Local Administration; 153,000, or 17 per cent in schools under the supervision of the Dept. of Primary Education; 54,900, or 6 per cent, in municipal schools and 289,000, or 31 per cent, in private schools.

Secondary Education

1. Lower Secondary Education (M.S. 1 - 3). There are about 479,100 students in lower secondary education of whom 258,100 or 54 per cent are in Government schools and 221,000 or 46 per cent are in private schools.

2. Upper Secondary Education (M.S. 4 - 5). **There are a total of 65,000 students; 39,300 or 60 per cent in Government schools and 25,700, or 40 per cent in private schools.**

Secondary Education Vocational Stream

In the lower secondary education, vocational stream, under the supervision of the Dept. of Vocational Education (M.S. 1 - 3), there are 3,800 students in Government schools. The objective is to reduce the number at this level and to convert the schools to become part of a comprehensive system. This does not include students in private schools, or schools under particular agencies which organize vocational training.

At the upper secondary level (M.S. 4 - 6), there are 58,500 students in Government schools.

Higher Vocational Level

There are about 14,300 students attending Government technical colleges, with 2 year, 3 year and 3 ½ year courses. There are also 2,500 vocational teacher trainees.

Teacher Training

There are 89,350 teacher trainees, of whom 42,100 are studying at the certificate level, 5,650 at degree level and 31,000 are attending evening school at all levels.

Higher Education Level

At present, there are 9 universities, with a total enrollment of 45,100 students in all faculties, 43,695 undergraduates and 3,885 graduate students. The Ram Kamhaeng University, which was recently opened in 1971, could absorb a further 40,000 students.

Education for adults and others

There are 88,680 students in all categories, of whom 990 are physical education students at all levels, 44,240 are adult students, 33,250 are students in Mobile Training units, 8,480 are special education students and 1,720 are arts and drama students.

Evaluation of Educational Development Programme during the Second Plan (1967 - 1971)

There were 48 educational development programmes during the Second Plan period. These consisted of 28 programmes continued from the proceeding Plan, and 20 new programmes. The results of their implementation are summarized as follows :

1. Programmes for primary education

(a) Quantitative expansion

The number of lower primary, compulsory education and upper primary (Prathom 5 - 7) pupils in schools under the supervision of changwat administration and municipalities, and in private schools reached a total of 5,697,500, or 193,500 more than the target set for the Second Plan.

(b) Qualitative improvement

At the primary education level, where there was an increase in repeaters, an experimental " automatic promotion " system was inaugurated. So far 159 schools have been selected for this experiment and the results have been quite satisfactory. In order that the education in primary schools conform to local requirements, the authority for supervision of these schools has been transfered from the Department of Elementary Education, Ministry of Education to the Department of Local Administration, Ministry of Interior. The Ministry of Education still exercises responsibility for curriculum development and quality control, as well as the adminisrtiaton of schools under the Department's experimental programmes.

2. Programmes for Secondary Education - Academic Stream

(a) Quantitative Expansion

The number of secondary school pupils in private schools and schools under the supervision of the Department of Secondary Education totalled 544,100 in 1971, 31,600 less than the target set in the Second Plan.

(b) Qualitative Improvement

An important programme for secondary education was the experiment on comprehensive schools which was first implemented in 1968. At present there are 20 schools, with 24,000 pupils, under this programme. The objective was to provide a more complete curriculum for the students to gain academic knowledge as well as vocational training and practical experience.

It was realized that a number of students from these schools would enter the labour market upon graduation, and the curriculum was therefore designed to teach them basic skills as well as general academic subjects.

3. Programmes for Secondary Education - Vocational Stream

(a) Quantitative Expansion

(i) Secondary education : The number of students reached a total of 62,300 at the end of the Second Plan period, almost equal to the target.

(ii) Higher Vocational Training (Technical Institutes). Students in Technical Institutes at the end of 1971 totalled 16,800 or 2,300 more than the target for the Second Plan.

(b) Qualitative Improvement

The expansion of industry and the introduction of new technology necessitated the improvement of vocational education in Thailand. During the Second Plan period a loan was obtained from the World Bank for this purpose. Through the Loan Project twenty-five agricultural and technical schools have been allocated funds for the improvement of buildings, curricula, instructors training and equip ment to help upgrade schools so as to provide appropriate manpower to supply the industrial and agricultural sectors.

4. Teacher Training

The number of teacher - trainees at degree and certificate levels was estimated to reach 31,700 during the Second Plan period. The actual number was 89,350 or 57,650 more than the target. This is due to the expansion of evening and special courses aimed at relieving the shortage of teachers in the rural areas.

5. Programmes for Higher Education

(a) Quantitative Expansion

The number of undergraduates in all faculties was estimated to reach 43,830 at the end of the Second Plan period. The actual result has surpassed this figure, as the number of students has now reached 45,100 or 1,270 (2.9%) more than the target.

Furthermore, the newly established Ram Kamhaeng University, which was opened in the 1971 academic year, was able to absorb around 40,000 students.

(b) Qualitative Improvement

Prior to the Second Plan, university education was available only in Bangkok. In order to provide equal opportunity for higher education in the rural areas, three additional universities were set up, namely Khon Kaen University in the Northeast, Songkhla Nakarin University in the South, and Chiang Mai University in the North. Priority was given to subjects deemed most necessary, such as sciences, medical sciences, engineering, agriculture and education. The number of registered university students has greatly increased. There were also programmes for development of postgraduate studies in the fields of sciences, mathematics, economics and English to train more qualified instructors for these universities.

Problems which appeared during the Second Plan and are Expected to Recur during the Third—Solutions for those Problems

Despite satisfactory development during the Second Plan there were several problems left to be solved. The most pressing was the waste of resources because of dropouts, failure to pass examinations and the increasing number of students repeating a course. In primary and secondary education, examination failure rates were 20 per cent and 40 per cent respectively. Another problem was that most of the students from primary and secondary schools lacked experience and skills to find suitable jobs after graduation. The need for highly qualified manpower in every field has become very urgent and the Government finds it necessary to improve education at all levels, not only in quality but also in quantity, in order to provide for the increasing number of school-age children and to meet the Government's commitment to make education more widely available. Limited capital resources and shortages of qualified teachers render this task even more difficult.

Even though some progress has been achieved, there are still problems which cannot be solved within a short period. The National Economic and Social Development Plan has placed emphasis upon agriculture and rural development, yet no consideration has been given either to improvement of curriculum, teaching methods, or to allocation of sufficient funds for educational development. It appears that the existing educational system is still unable to provide suitable programmes to meet the national objectives.

The funds allocated are mainly used for the education of children and youth. Although the importance of continuing education throughout human life is realized, continuing and adult education have not been given reasonable priority. In addition to the lack of emphasis, the responsibility for providing continuing and adult education was given to several ministries and agencies and lack of coordination among them caused serious setbacks. Therefore, the full realization of these objectives is very difficult to attain.

1. Lack of qualified teachers. The basic problem which hampers the expansion and improvement of quality of education at all levels is the shortage of qualified teachers.

Despite the increased number of teachers during the Second Plan, shortages are still acute in remote areas where it is very difficult to recruit teaching staff because of low salaries, hard living conditions and security problems. For higher education in the regions, in fields such as medical science and agriculture there are very limited numbers of instructors available, though great efforts have been made to train more personnel in these fields during the Second Plan period.

These problems, as well as others, will be given full attention during the Third Plan, although it is realized that not all of them can be solved within a short period. Preparations will be made to train the required number of teachers, to set up new curricula, acquire more textbooks and undertake appropriate research and evaluation programmes, so that the education system can be expanded in the future. It is estimated that during the Third Plan the number of teacher trainees and students at all levels will be increased, and there will be faster improvement in the quality of education. By the final year of the Plan the school-age population is expected to have increased tremendously at every level and in educational institutions all over the country and all will have better opportunities to receive an adequate education to allow them to achieve a better life.

2. Lack of Targets for Adult and other Special Education

During the Second Plan no definite target was set for the expansion of adult and other specialized education. At the end of the Plan the total number of students was 44,440, of which 33,250 were enrolled in short vocational courses and mobile occupational training, 990 were physical education students, 8,480 welfare education students and 1,720 drama and art students.

Summary

As already mentioned, the rate of increase in the number of students of all types and levels was more rapid than the increase in the school - age population, with the exception of vocational school students at M.S. 1 - 3 levels whose gradual elimination has been scheduled, and of students at the lower primary level where the compulsory education programme had been implemented before the start of the Second Plan.

Measures to increase the number of students at vocational secondary school level, as well as teacher training, were emphasized. The main objective was to increase the supply of middle level manpower to meet the demand. Rapid expansion was achieved, especially in teacher training where the number enrolled has increased three-fold compared with the initial stage of the Second Plan. At the undergraduate level the number of students has increased seven-fold. This expansion not only produced enough teachers to meet the increasing demand in the Plan period, but also helped to lessen the problem of teacher shortage and to upgrade academic standards.

At the higher education level, although the number of students did not expand as much as at other levels, several important subjects were promoted, such as medical sciences, education, engineering and agriculture. Many new faculties were set up during the Second Plan, these being a medical sciences faculty, an agriculture faculty, five education faculties and four engineering faculties. In addition, the King Mongkut Institute of Technology was established to train higher level technicians and the Ram Kamhaeng University was opened in 1971.

In summary, the implementation of educational development programmes during the Second Plan period has achieved an appropriate increase in the number of students at all levels in view of the limited staff and financial resources available. Due to the lack of manpower and financial resources, it was impossible to achieve entirely the objective of improving quality, because the increase in students was so rapid during the Plan period.

Problems at different levels of education

1. Primary level. The main problems are:

(a) Shortage of teachers and teaching materials, especially in remote areas; lack of permanent school buildings and equipment in poverty - stricken districts; and acute shortage of textbooks. These shortages are the cause of deficiencies in the educational system which result in a waste of budget resources as the student dropout rate at this level is still very high. For example, 5 per cent of the pupils left school at Prathom 1 and 23 per cent of this class failed to pass the examination.

(b) Assignment of teachers to administrative posts at local and district educational centres caused a shortage of teachers in changwat administrations. Since some 4,000 teachers have been assigned administrative instead of teaching work, special attention will be given to solving this problem in the Third Plan.

(c) Problem of lack of close supervision of education. Due to the difficulties of communication, and the recent transfer of the supervision of primary education to changwat administrative organizations, coordination between local agencies and the Ministry of Education has been difficult. This is the main cause of erratic and unsystematic supervision and contributes to high rates of absenteeism.

(d) The need for rapid expansion of the upper primary level (Prathom 5 - 7). The percentage of children continuing to Prathom 5 amounted to only 32 per cent of all Prathom 4 graduate, and this percentage must improve during the Plan period. This can be achieved through the recruitment of more teachers for remote areas; improvement of school buildings; provision of new teaching equipment; better housing and training programmes for permanent teachers; distribution of textbooks in poverty - stricken areas and the setting up of community schools. There will be revisions in the basic curriculum in accordance with each area's special conditions. Emphasis will be placed on closer supervision at the upper primary level.

2. Secondary Level - Academic Stream and Comprehensive Schools

The problems are generally similar to those of the primary level :

(a) Shortage of qualified teachers, especially in important subjects such as mathematics and sciences. Such shortages are most evident in remote areas where many teaching posts are vacant.

(b) Shortage of school and other educational buildings and lack of teaching equipment, especially in scientific subjects. Other essential needs are housing for teachers and welfare services, the lack of which has made teaching in rural areas unpopular, resulting in a shortage of qualified teachers.

(c) The qualitative improvement of secondary schools, and the development of comprehensive schools which had been given high priority in the loan programme, have encountered problems which delayed implementation.

(i) Problem of procedures. The construction of school buildings fell behind schedule due to the delay while waiting for the Loan Bill to be approved. As this loan was intended to be drawn from the Bank of Thailand, it required the sanction of the National Assembly. Consequently, invitations to bid for construction and the supply of teaching equipment have been delayed and the opening of schools inevitably fell behind schedule. This problem will be less accute in the Third Plan.

(ii) Problem of personnel. Comprehensive schools still face shortages of qualified academic and technical teachers essential for a full curriculum. At present, a number of teachers are being trained abroad and this problem should be eased during the Plan period. However, it is necessary to support and build up an adequate supply of new teachers for the expanded programme.

(d) Other problems at secondary education level : academic stream

The present system of secondary education is not adequate to meet the requirements for middle - level manpower, and enrollment was lower than the target set for the Second Plan. In the Third Plan, this problem will be eased by more rapid expansion of the secondary education - academic stream in the rural areas. Secondary schools will be established in districts where such schools do not yet exist and improvement and expansion of schools near regional universities will be undertaken. In general education academic and vocational subjects will be taught simultaneously, using a selective curriculum so that students can choose the subjects in which they are interested. Guidance programmes will be encouraged to help students at the higher secondary school level as well as other levels. Academic standards in private schools will be raised through the establishment of the Private School Teachers Training Centre and support will be given to private schools with high academic standards. Emphasis will also be placed on closer supervision of private schools.

3. Vocational Education

Major problems that hinder effective expansion of vocational training are :

(a) Shortage of teachers in number as well as qualification, especially of teachers with technical or horticultural qualifications. This is caused mainly by the shirft of teaching staff from Government schools to private enterprises which are willing to offer higher pay.

(b) Problems of agricultural schools. Besides the shortage of qualified teachers these schools lack adequate personnel in such fields as land development, construction and provision of water supply for agricultural experimentation and operation, and maintenance of agricultural machinery and equipment. Moreover, close collaboration with extension agencies of the Ministry of Agriculture is still lacking. Progress in accelerating the improvement of agriculture is thus slowed down through lack of adequate demonstration and essential practical work.

(c) Problems of implementation of the loan programme for improvement of vocational education. The 25 vocational schools under the loan programme of the Second Plan have met problems and difficulties such as delays in preparing bids for and actual construction of school buildings. These were caused by lack of experience at the first stage. There were other problems regarding import and installation of teaching and workshop equipment which had to conform with the loan regulations of the World Bank for purchases abroad. This resulted in delays and high cost of purchases and the programme could not be successfully implemented within the Second Plan period.

(d) Mobile vocational training units and comprehensive vocational schools. In the provinces, the problem of different agencies doing the same type of work often occured, such as vocational training which is done by both the Office of Accelerated Rural Development and the Community Development Centre of the Department of Community Development, and other activities such as adult education and youth development programmes. Thus it is necessary to evaluate carefully these operations to identify needed improvements and coordination.

The immediate problem facing vocational education is the shortage of qualified teachers, especially in the fields of industrial technology and vocational agriculture. In order to deal with this problem during the Plan period the output of vocational teachers at all levels will be accelerated through the improvement and expansion of every kind of vocational institution. The development of the King Mongkut Institute of Technology will be given priority. Since investment in vocational education requires considerable capital, supplementary loan projects will be undertaken from the beginning of the Plan period. These projects consist of selected programmes to improve vocational agricultural and industrial schools. However, the success of these projects depends on having a sufficient numbers of qualified teachers. Priority must therefore be given to the following courses of action which must be undertaken simultaneously: the training of more qualified instructors at home and abroad, and the revision of vocational teachers' pay scales and allowances.

4. Teacher Training

(a) Problem of training certificate level teachers. Although the Second Plan was abel to exceed the target for teacher training the problem of quality remains. While the number of students increased rapidly the number of teachers, classrooms, and teaching equipment has not increased proportionally. For example, there used to be 35 trainees in a class, but there are now 40 - 45, and consequently supervision cannot be thorough. Moreover, the evening schools which are run by the same group of instructors add to their responsibilities and thus affect the quality of teaching.

(b) Problem of graduating teachers with degrees in education. Training of degree level teachers has been below target, and there is still a shortage of qualified teachers in various colleges of education, especially at the master and doctorate levels.

Moreover, college libraries are not up to standard or comprehensive enough for research work. Shortage of instructors and libraries are more evident in provincial colleges of education than in the metropolitan area.

As already stated, the qualitative improvement of education at all levels is still below target, due to the shortage of qualified teachers in all sectors. The Second Plan revealed that the quality of graduates from teachers' training colleges was not up to standard. Lack of instructors, classrooms and equipment, which could not be increased in proportion to the rapid increase in the number of trainees were the main problems. It is necessary to remedy these deficiencies during the Plan period by increasing the output of instructors with masters and doctorates in education to meet the needs of the teacher training institutions. Improvements in curricula and educational equipment will be instigated and the use of the libraries to supplement study will be encouraged.

5. Higher Education

Major problems in higher educational development are as follow :

(a) Shortage of instructors in various subjects and of instructors with higher qualifications.

During the Second Plan period some universities in the capital maintained a large proportion of special lecturers, in certain cases 40 per cent of the total number of regular instructors. This lowered the standards of teaching, as special lecturers could not give sufficient attention and supervision to their students.

Corrective measures to be undertaken are as follows: the output of teachers with masters and doctoral degrees in the subjects where there are acute shortages will be increased through the implementation of university development and graduate college programmes; lecturers' research work will be encouraged, as well as the improvement of libraries and the promotion of wider use of libraries by students. To attain a suitable ratio of instructors to students the establishment of new faculties or increasing enrollment in existing ones will follow carefully thought out plans. Furthermore, outmoded systems which delay educational progress should be abolished, such as the training of graduates for higher degrees in certain fields. During the Second Plan, the ratio of instructors with Ph.D., Masters and Bachelors degrees was 0.7 :4.2:5.1. The target for the Third Plan set the ratio of instructors with Ph.D., Masters and Bachelors degrees at 3:10:7 in proportion with the increase in the number of students in all universities.

(b) Problem of shortage of Thai and English textbooks. Since most students lack knowledge of English and the publication of textbooks in Thai for higher studies is not widespread, most university students have to study from notes taken during lectures and are not able to do research work in the libraries. This problem hinders academic development and the students lack the initiative and willingness to search for information by themselves. In order to encourage students to work on their own initiative more textbooks in Thai should be published, especially on subjects of benefit to a majority of students. At the same time the English language programme should be developed to help graduates who wish to continue their studies at Masters or Ph.D. levels, so that they will be able to do their research work from English textbooks. For faculties which are essential to the development of the economy, it is possible to set up programmes to improve the teaching standard by accepting foreign aid or loans. If there is need for foreign staff to help teach certain subjects for which the universities have insufficient local staff, the curriculum of those courses can be organized in English so that the university can obtain assistance from abroad. This method has been used at the Faculty of Economics, Thammasat University, during the Second Plan period with satisfactory results.

(c) Teaching equipment and facilities. During the Second Plan large funds were allocated for the construction of university buildings and staff residences. There is still a shortage of physical facilities as well as of teaching equipment. Unfortunately there is no set standard for construction. For some buildings emphasis was placed on elaborate structures and design and consequently are not utilized to the maximum. This excessive construction depleted investment funds, causing a subsequent lack of funds for purchasing equipment. In the Plan period emphasis will be placed on the construction of necessary buildings to meet the real needs of each faculty, and on their most effective use. At the same time investment in teaching equipment and audio-visual aids will be emphasized. As regard teachers' housing, adequate facilities will be provided in regional universities in order to attract more teachers. For universities in the Bangkok area the need to provide housing is less urgent than the need for investment in other facilities.

(d) Problem of future expansion of universities. During the Second Plan period several universities, i.e. Thammasat, Kasetsart, Mahidol and the University of Fine Arts were faced with the problem of limited campus space. At present, an extension of the University of Fine Arts has been established at the Sanam Chan Palace, Nakhon Pathom. There is a loan project to expand Kasetsart University by transferring some departments to Kamphaeng Saen district, Nakhon Pathom. Thammasat University in considering using land at Rangsit where a second campus is to be built, and Mahidol University has acquired a large tract of land at Salaya district, Nakhon Pathom to set up a second campus during the Third Plan period. University expansion problems cannot be solved quickly because of the shortage of teachers for new extensions, inconvenient communications and lack of accommodation for the teaching staff. The formulation of future expansion programmes during the Plan period will be based upon a master plan for the full utilization of all available land.

(e) Improving university administration to achieve more academic flexibility. The Second Plan has stressed the need for the universities to have more independence in their administrative and academic functions. Ways and means are to be found for the improvement of the present system, so that universities can have a free hand to develop more efficient administrations.

Encouragement has already been given to the establishment of private colleges to organize courses equivalent to degree level. It is now necessary to help the colleges which have attained a high standard of education to remain in operation in fair competition with State colleges. The Government should not attempt to compete with these colleges but rather give them support so that they can help relieve some of the Government's burden in providing higher education.

(f) Adult education, vocational and other special educational training.

Problems of adult education, vocational and other special educational training did not receive much attention in the Second Plan. Various departments continue to do similar types of work in the provinces, for example: adult education by the Department of Elementary Education; mobile vocational training units and vocational schools by the Department of Vocational Education, Ministry of Education and the Youth Training Centre of the Prime Minister's Office; Skill Training Centre by the Labour Department, and ARD Vocational Training units by the Ministry of National Development etc. Such duplication without cohesive targets is a waste of resources. Futhermore, most of this training does not meet particular needs of the local labour market and inevitably becomes ineffective. Moreover, there is no follow - up or coordination among departments. The Third Plan will emphasize the importance of vocational training, at various age levels, of persons whose education has been interrupted. Coordination plans will be drawn up and the duty of each department specified, to achieve efficient cooperation. Evaluation of these operations through research and programme inspection will pinpoint obstacles and difficulties so that ways and means can be found to overcome them.

Overall Problems of Educational Development in the Third Plan (1972 - 1976). Other than the above mentioned difficulties other problems to be expected during the Plan period require suitable solutions :

1. The high rate of population increase at every educational level. Since the birth rate cannot be instantly slowed down, the number of students will greatly increase each year at every educational level, while the budget for educational development will not increase at the same rate. Under these circumstances, educational development both in quantity and quality, might not be achieved as fast as planned.

2. The unbalanced expansion of education in the cities and provinces. In the cities which are the centres of progress, education expands rapidly, thus creating differences between the standard of education in the cities and that in the provinces. No matter how hard the Government tries to expand education in the provinces, the problem of shortage of teachers is still very acute at every level in the regions. This must be remedied immediately.

3. The organization of education in the provinces to suit local conditions. The Government has been giving support to various regional development projects. Education in the provinces - higher, secondary, vocational, primary, and adult - should aim at establishing courses with a curriculum content that meets the needs of the region, e.g. providing trade and industrial courses for developing industrial areas, or agricultural education for agricultural areas.

4. Education by the private sector: Definite policies and targets should be considered concerning the role of the private sector in education. Also measures for support and control should be introduced and close cooperation between the Government and the private sector promoted.

The Government should also consider giving academic advice on teacher training for private schools, as well as supervise and control the quality and quantity of education provided by the private sector.

Proposed Measures for Solving Problems during the Third Phase of the National Education Development Plan.

1. Study the population problems and find measures for controlling the high growth rate. Study should be made of the trend of population increase both in the urban and rural areas. Support must be given to the Family Planning Project to make it effective. Programmes should be introduced to promote a better understanding of population problems among the young. This could be done by adjusting the curriculum in adult education, nursing and midwifery courses, and in the teacher training courses and some branches of higher education.

2. Consider means of reducing cost per head at all levels, either by considering ways to reduce building costs for all types of buildings, or by encouraging the sharing of classrooms and laboratories. Also, community school systems should be promoted. During Phase II, development funds have been allocated for construction which should make expansion in quantity at almost every level possible and, therefore, during Phase III, emphasis should be placed more on quality improvement. The two - shift system should also be expanded, without sacrificing the quality of education, with a view to quantitative increase during Phase III.

3. Find a new educational system to bring about more flexibility both in administration and academic sectors as well as better coordination at all levels. This requires measures at various levels: department, ministry and university. Resources should be pooled so as to make maximum use of, teachers and university lecturers, laboratories, libraries, mass media, guidance services, educational materials. Curricula for vocational education, comprehensive schools and secondary schools

should be reviewed to see whether they are suitable for present socio - economic conditions. Adult education and out - of - school training must be related to the labour market, community development and long - term planning for manpower.

4. Find ways of promoting education in the regions. Teachers and instructors in the regions should be given more social benefits and security as well as more opportunities for further studies. Rules and regulations concerning per diem, board and lodging should be revised. Also the rules and regulations issued by the Teacher Council should be reviewed so that people with the required experience can become teachers and, thereby, help solve the problems of shortage of teachers in the rural areas.

5. Consider educational coordination at every level, so that education comply with the educational development plan of the regions and provinces. Emphasis should be put on problems and special characteristics of education in each region, so that solutions can be found for the specific problems of each region.

Educational Policies and Targets of the Third Plan (1972—1976)

The Policies and Targets of the Third Plan are to promote efficiency and productivity at all levels, within and without the educational system. Emphasis will be placed on technical knowledge in order to increase productivity through the maximum use of natural resources, thus reducing unemployment in rural areas. Community and local development programmes which aim at the prevention of social problems will also be stressed. Five overall policies of educational development in the Third Plan are summarized as follows :

1. To expand lower primary education in order to supply education for the increasing number of school - age children.

2. To improve and expand compulsory education at the upper primary level (Prathom 5 - 7). This task must be completed by 1990, together with the incorporation of agricultural subjects in the curriculum at this level.

3. To support education in sciences, technology and vocational studies and to expand lower secondary education within the budget constraints. It is hoped to provide courses which may enable students to receive further training so that sufficient middle level manpower will be available at the start of the Fourth Plan.

4. To accelerate the training of qualified teachers to meet requirements at all educational levels.

5. To promote adult and out - of - school education by placing emphasis on agricultural training.

Educational development policies and targets at each level can be classified as follow :

Primary Level

1. To expand primary education to meet the needs of the increasing population and to improve efficiency in order to reduce waste especially at the lower primary level.

2. To accelerate the expansion of upper primary schools with emphasis on occupational requirements in the provinces.

3. To improve provincial primary schools and transform them into community schools by utilizing all resources fully and in such a manner as to conform with rural development objectives.

Secondary Level - Academic Stream

1. To improve and expand secondary level education according to the requirements for middle - level manpower, with particular emphasis on the provinces, and to improve and broaden the curriculum so that students will have more opportunity to select subjects of their choice.

2. To increase efficiency and reduce waste, particularly at the upper secondary level.

3. To improve private schools by giving special emphasis to improved teaching.

Secondary Level - Vocational Stream

1. To improve and expand upper vocational secondary schools to help meet the demand for middle - level manpower and to emphasize particularly agricultural education.

2. To reduce the lower secondary level - vocational stream by arranging a programme that can be integrated with the lower secondary level academic stream.

3. To support and encourage vocational teaching and to promote the welfare of technical instructors.

4. To provide short training course in rural vocational schools so as to make maximum use of the facilities and equipment available.

Teacher Training Level

1. To improve and expand teacher training, for both academic and vocational streams, in important fields such as industrial engineering, agriculture and physical education, in order to meet national requirements. Programmes will be arranged to attract provincial students to enroll in the local teacher training colleges in order to become teachers in their hometowns.

2. To concentrate on producing qualified staff to teach at teacher training colleges so as to facilitate their further expansion.

3. To revise the teacher training curriculum at all levels to attain higher standards and conform with social needs.

4. To promote the publication of textbooks and educational research, as well as the use of libraries.

Higher Education

1. To improve quality and efficiency, both administrative and academic, and to reduce waste, especially at the undergraduate level.

2. To improve and promote the fields which are essential to social and economic development, such as agriculture, engineering, sciences, medical sciences and Thai studies, and to emphasize the study of the English language. Encourage graduate study for university instructors in order to have enough lecturers for university and other educational institutions.

3. To promote research and the publication of textbooks for higher education.

4. To develop regional universities as the real academic centres for each region. To promote experimental development of community colleges so as to meet the demand for middle level manpower in occupations which are most needed.

Adult and other special education

1. To promote adult and out - of - school education for dropouts and those who have had no opportunity to continue their studies, by providing basic reading and writing classes as well as vocational training to suit local needs. To improve adult education centres and mobile vocational training units to suit the socio - economic conditions of rural areas.

2. To promote the use of the mass - media in the development of adult education and to improve and expand public libraries in areas which lack adult education centres.

3. To promote youth activities in local development and vocational training for young people.

Nursing

1. To expand nurses' training at all levels by Government and private institutions, so that the number of qualified nurses can be increased to meet the country's needs. Upper level (M.S. 5 basic requirement) nurses training will be given support.

2. To improve the standards of nursing education and training and to support nurses' welfare in the provinces and remote areas, as well as to encourage more women to take up nursing.

Third Plan Target Educational Development at all Levels

Quantitative Targets

In 1971, the number of students of all categories totalled 6,642,700. It is projected to reach 8,880,950 at the end of the Plan period, an increase of 2,238,250 or 34 per cent more than at the end of the Second Plan. (See table 16-4). The targets for educational development at each level are :

1. Kindergarten and Primary Education

(a) The expansion of kindergartens will be based on past trends.

(b) To reduce waste at the lower primary level (Prathom 1 - 4), especially the number of repeaters in Prathom 1 class. Moreover, it will be stipulated that the child must be 7 years old, or under, to be eligible for enrollment. At the end of the Plan period, it is estimated that enrollment at Prathom 1 - 4 will be approximately 5,730,500 or 930,900 (19 per cent) more than at the end of the Second Plan.

(c) Expansion of upper primary education (Prathom 5 - 7). There will be an increase in the number of Prathom 4 students continuing in Prathom 5, from 32 per cent in 1969/70 to 50 per cent at the end of the Plan. At the same time there will be a reduction in the number of repeaters and dropouts. It is estimated that the number of student will increase to 1,555,000 or 68 per cent more than at present.

2. Secondary - Academic Stream and Comprehensive Schools

The enrollment target is based on the following assumptions :

(a) Lower secondary level (M.S. 1 - 3) will be expanded in order to take in the rapidly increasing number of pupils from the upper primary level. At the same time there will be a reduction in the number of repeaters and dropouts.

(b) Reduction in the number of repeaters and dropouts, especially at M.S. 4 grade and examination failures in M.S. 5 grade. The enrollment in M.S. 4 will be determined by the number of graduates at M.S. 5 needed to supply the requirements of universities.

At the end of the Third Plan Government schools will be able to enroll approximately 523,000 students at the lower secondary level (M.S. 1 - 3), 264,900 or 102 per cent more than at present, and will be able to expand enrollment in the upper secondary level to 78,100, an increase of 99 per cent. There will be improvements in the lower and upper secondary levels to the extent permitted by budget appropriations as well as introduction of a two - shift system and an increase in the number of pupils per class. It is estimated that private schools will be able to increase their enrollment at lower and upper secondary levels by approximately 12,100, or 5 per cent more than at present.

3. Secondary - vocational stream

Because of the lack of sufficient data, the number of students in private schools cannot be estimated.

The following targets are only for Government schools covering lower and upper secondary education: vocational stream (M.S. 1 - 6)

The formulation of targets for the number of students is based upon the following assumptions :

(a) Lower vocational secondary level. The target is a gradual reduction in the number of vocational students with a view to eliminating this type of school entirely during the Fourth Plan period.

(b) Upper vocational secondary level. The number of M.S. 6 graduates will be increased by 8 per cent annually so as to meet the manpower demand and at the same time the number of repeating students and dropouts will be reduced. It is estimated that enrollment will be raised to 74,000 towards the end of the Third Plan period, an increase of 28 per cent over the present number.

4. Vocational Education : Technical Level

The target number of students of this level is derived from the estimated future demand for technicians, as well as from the absorptive capacity of the present institutions. During the final year of the Plan enrollment will reach 22,200 or an increase of 55 per cent from the present number.

5. Vocational Teacher Training

In order to determine the target number of students, the demand for teachers with various qualifications, especially the need for more agricultural instructors and professional vocational teachers, was taken into consideration. It is estimated that during the Plan period the number of vocational teacher trainees will reach 4,500, an increase of 87 per cent from the end of the Second Plan.

6. Teacher Training

Various assumptions and data were taken into consideration in formulating the target for the number of trainees, such as the target number of students in both Government and private schools, size of classes, students teachers ratio, etc. Towards the end of the Third Plan period enrollment of 119,400 teacher trainees at certificate of education and degree levels is expected, an increase of 34 per cent over the present number.

7. University

The demand for manpower with bachelor and higher degrees is used as a basis for calculating the target number of students in all universities. The Plan emphasizes the rapid expansion of some professions, such as engineering, agriculture, science and medicine, and aims at a 41 per cent increase in total university enrollments, from 45,100 at present to 63,750 in 1976. This number, however, excludes students of Ram Kamhaeng University which has unlimited enrollment.

King Mongkut Institute of Technology

The target figure for enrollment of this institute is derived from the estimated demand for manpower of intermediate and advanced levels, but it excludes the large number of evening class students. Currently the Institute's enrollment totals 2,500 students and the number is expected to reach 3,800 by the end of the Plan period, an increase of 1,300 students or 52 per cent.

9. Adult and Other Special Education

The target figure for this category comprises all students in adult and special education programmes, mobile trade training units, comprehensive engineering colleges, arts and drama schools and physical education trainees. In formulating this target assumptions were made regarding the maximum allowable size of schools and the capability to supply teachers and obtain foreign aid for mobile units. For adult education it was assumed that there must be more cooperation amongst authorities concerned at all levels, together with improvement of libraries and audio-visual centres. The expansion of adult education, therefore, depends mainly on financial support. Towards the end of the Plan period the number of students for short-courses in vocational adult and special education programmes at all levels will reach 237,400, an increase of 148,720 or 168 per cent from the Second Plan period. Improvement in the quality of instruction is an urgent need and evaluation of progress should be made periodically.

Targets for Improving Quality of Education

1. Primary Education

— To reduce wastage, especially the number of pupils repeating and dropping out of primary schools, by improving the quality of teachers.

— To expand distribution of textbooks and teaching materials, heighten interest in education in remote villages, and effect improvements in educational services in rural areas, with emphasis on villages with special conditions, such as border areas. Expansion of the scope of primary schools to become community institutions will be encouraged.

2. Secondary Education : Academic Stream

— To improve the quality of secondary education by expanding Type I comprehensive secondary schools (under the loan project).

— To improve and expand secondary schools in the provinces, particularly in changwats near provincial universities or in areas most likely to keep students and so deter them from coming to the capital city.

— To establish 180 secondary schools at district level, so as to cover all districts which lack comprehensive secondary schools, as well as to improve the quality of secondary education in the provinces.

— To improve the quality of teachers in private schools by encouraging the establishment of Private Teacher Training Centres. This will give private school teachers an opportunity to improve their knowledge and learn new teaching methods, including the use of technology in teaching and learning.

3. Vocational Education

— To improve vocational schools at the upper secondary level (M.S. 4 - 5 - 6), particularly in agricultural subjects, in order to increase enrollment of students in agricultural colleges and the existing agricultural schools throughout the country.

— To establish 10 new agricultural schools in the provinces so that agricultural education can be spread more widely in rural areas as well as providing the manpower required for the development of agriculture during the Fourth Plan period.

— To evaluate the progress of 25 schools under the loan project for vocational development, with emphasis on improving teaching quality and training in agricultural industrial vocational schools as well as upgrading teachers' qualifications.

— To increase the output of vocational teachers in order to solve the problem of shortage of vocational teachers in schools at all levels.

— To modernize the vocational education curriculum in order to conform with social needs. More subjects will be added to the curriculum in industrial schools and commerce will be taught in women's technical schools in the provinces. The main aim for development of higher vocational education during the Plan period is to support and strengthen the work of King Mongkut Institute of Technology.

— Also within the Plan period, priority will be given to projects aimed at bringing 15 more provincial agricultural and industrial vocational schools up to standards. Loans from abroad may be needed to finance these projects.

4. Teacher Training

— To improve and expand teacher training for both academic and vocational streams in essential subjects such as industrial engineering and agriculture, so as to meet the country's needs.

— To emphasize preparation of teachers with university degrees to teach at teacher training institutions. Teacher training curricula at all levels will be improved to conform with the aims of developing education and raising overall standards.

— To arrange special curricula for rural teacher training in every teachers college in the provinces, so as to encourage graduates to become teachers and leaders in rural areas.

— To promote production of textbooks and teaching manuals, and educational research in schools.

5. Higher Education

— To improve and promote graduate studies by more postgraduate instructors for universities and higher institutions.

— To improve and develop regional universities so that they can meet the manpower demand and become technical centres for each region. The following subjects will be organized and promoted for regional universities: humanities, sociology, sciences.

— To experiment with a community college programme so as to produce middle level manpower with skills relevant to the needs of each area.

— To enlist the cooperation of the private sector to help finance higher education. However, quality control of education at this level remains most important.

6. Adult and Other Special Education

— To improve curricula of adult education programmes, multi - vocational schools, mobile trade training units and other vocational training units to suit local requirements.

— The teaching of agriculture to adults will be emphasized by establishing extensive mobile agricultural training units. New agricultural methods will be taught to students of Prathom 4 level so that they will be able to help their parents in farming.

— To promote skilled manpower development programmes by giving intensive vocational training to youths as well as adults.

— Adult and special education are to be improved by increasing the use of audio-visual equipment and mass media. Support will be given to establishment of public libraries in cooperation with provincial authorities.

— To improve and increase output of physical education teachers at all levels in order to solve the problem of shortage of such teachers in schools throughout the country.

7. Youth Promotion and Development

During the Plan period youth promotion and development programmes will be more effectively organized through closer coordination between the Government agencies concerned. There are still a large number of young people of school - age who lack education because of financial difficulties or failure to pass the entrance examination and because the number of schools is limited. Since it is realized that education for young people is necessary if they are to become useful members of society, the National Youth Promotion Board was established as a permanent body at the end of the Second Plan period, with the following principal programmes.

(a) Mixed rural youth development programme. This programme aims at training local youth leaders by emphasizing vocational training and literacy as well as offering short training courses tailored to local conditions. Mass - media will be used for this purpose, such as educational films on agricultural training, and dissemination of knowledge in the form of news and information.

Towards the end of the Plan period emphasis will be placed upon establishing a credit cooperative system for young people in order to show them how to save money and how to use credit and insurance. A vocational training centre for rural youth leaders was established at the end of the Second Plan period at Lop Buri. During the Plan period a training centre for rural youth in the South will be established at Satun and another one in the North.

(b) Urban youth leader training programme. Projects will be formulated, coordinated with local development programmes organized by a group of undergraduates and students, so that urban youths who are too old for school and unemployed will have the opportunity to enhance their skills, as well as improve their attitude towards society.

Appropriations for Educational Development

The total budget for educational development during the Plan period, including continuing and new projects to improve quality and to increase enrollment, is estimated to be 32,922 million baht. Details are as follows : (See Tables 16-1 and 16-2)

TABLE 16 - 1

Educational Development Expenditure (1972 - 1976)

(Budget appropriation only)

(million baht)

Educational level	1972	1973	1974	1975	1976	Total 1972-1976
1. Primary & Kindergarten	2,924.18	3,117.12	3,378.18	3,598.22	3,746.87	16,764.57
2. Secondary, Vocational Teacher Training & Higher Professions	1,169.46	1,383.34	1,552.65	1,655.69	1,729.60	7,490.74
3. Higher Education	878.93	853.89	1,064.59	1,196.90	1,357.96	5,452.27
4. Adult and Other Special Education	254.26	282.42	291.82	324.19	351.73	1,504.42
Total	5,226.83	5,736.77	6,287.24	6,775.00	7,186.16	31,212.00

TABLE 16 - 2

Educational Development Expenditure

(By source of fund)

(million baht)

Sources of Funds	Amount
1. National Budget	31,212.00*
2. Foreign Loans	660.00
3. Foreign Grants	1,050.00
Total	32,922.00

Note: * The total amount is for top priority projects only. There is a reserved budget of 1,240.85 million baht for lower priority projects.

TABLE 16 - 3

Details of Educational Development Expenditures from Budget

(1972 - 1976)

(million baht)

Educational level	Total Budget	Responsible agencies 1)	Budget	Reserved* Budget	Total
1. Primary & Kindergarten 2)	17,546.23	1. Changwat Administrative Organization	15,282.44	607.56	15,890.00
		2. Ministry of Education	1,482.12	174.11	1,656.23
2. Secondary education and Teacher Training Vocational Education & Advanced Professional Training	7,682.24	1. Teacher Training	1,316.44	—	1,316.44
		2. Vocational Education M.S. 1 - 6 Vocational Teacher Training & Advanced Professional Training	2,019.43	84.50	2,103.93
		3. Secondary (Academic Stream) M.S. 1 - 5	4,154.87	107.00	4,216.87
3. Higher Education	5,648.49	1. Nine universities	4,810.72	196.22	5,006.94
		1.1 Continuing projects including Project to Establish new Faculties of First Priority and University Development Project	(4,810.72)	(—)	(4,810.72)
		1.2 New projects of Second Priority	(—)	(192.22)	(196.22)
		2. Ram Kamhaeng University 3)	125.00	—	125.00
		3. College of Education	400.05	—	400.05
		4. King Mongkut Institute of Technology	116.50	—	116.50
4. Adult and other Special Education	1,575.89	1. Adult Education (Dept. of Primary Education)	208.00	23.00	231.00
		2. Short - course schools and Mobile Training Units, Training of Technician under ARD Project (Dept. of Vocational Education)	162.44	18.00	185.00
		3. Youth Promotion & Development Centres.	62.12	2.47	64.59
		4. Physical Education	152.01	—	152.01
		5. Dept. of Educational Techniques	56.59	20.00	76.59
		6. Private School Subsidy Fund (Dept. of Secondary Education)	662.05	—	662.05
		7. Fine Arts and Drama Schools (Dept. of Fine Arts)	43.90	—	43.90

(million baht)

Educational level	Total Budget	Responsible agencies 1)	Budget	Reserved* Budget	Total
		8. Projects under the Office of the Under Secretary of State Ministry of Education	152.75	8.00	160.75
Total	32,452.85		31,212.00	1,240.85	32,452.85

Note: 1/ Total budget does not include administrative expenditures of the Ministry of Education and Ministry of Interior.

2/ Does not include subsidy funds for municipal education which have already been earmarked in the budget of municipality in the local development sector. (The amount totalled 747.00 million baht)

3/ Does not include Ram Kamhaeng University's annual receipt of tuition fees which is estimated at 40.00 million baht.

* Reserved development budget (2) denotes expenditure for lower priority projects to be obtained from additional appropriation of national budget and foreign grants and loans. (see details of educational development budget Table 8.)

Prospects

To achieve development and improvement of education in the next ten years (1971 - 1980), emphasis will be placed on an educational policy which will provide a sound basis for the nation's economic and social system. This means that accelerated improvements in the quality of education at every level must be accomplished within the Plan period, as well as preparations for a more suitable educational structure. For example, expanding the educational base at all levels in proportion to the school age distribution; eliminating wastage by reducing the number of repeaters and dropouts ; enlarging programmes for training of manpower, including provision of adult education for the poor. Furthermore, vocational training for women in teaching, nursing and handicraft will be expanded in order to solve economic and social problems and raise the income level of women in rural areas.

In summary, the trend for educational development for the next ten years will be in accordance with the policies of the Third National Economic and Social Development Plan :

1. To provide better educational opportunities for young people by increasing the number of students at levels in the next ten years as follows :— The percentage of lower primary pupils (primary I to IV) will decrease from 118 per cent in 1970 to 110 per cent of the relevant population (age group 7 - 10) by 1980, since it is expected that in the year 1980 the number of failures in annual examinations will be substantially reduced, and that compulsory education (Primary I to IV) will present almost no problem. In the upper primary level, the number of pupils (age group 11 - 13) is expected to increase from 33 per cent in 1970 to more than 70 per cent in 1980. The number of pupils in secondary education (M.S. 1 - 5) will also increase from 12.8 per cent (age group 14 - 18) in 1970 to at least 23 per cent in 1980. The target number for higher education, technical education and advanced professional training should increase from 2 per cent (age group 19 - 22) in 1970 to 3.4 per cent in 1980. At the upper vocational secondary level an increase from 3.8 per cent (age - group 17 - 19) to 5.9 per cent in 1980 is expected.

2. Education will play a more important role in the development of the country. There will be better statistical information, as well as improvements in research on employment and labour utilization, to permit a more accurate assessment manpower needs. The development of the educational system will continue to stress medical, vocational and technological training. In higher educational institutions, besides training of manpower to meet the country's demands, encouragement will be given to the training of specialists in several fields. Moreover, there will be more participation by higher education institutions in research activities concerned with national social problems and more contribution in that regard will be made to society. Within the next ten years universities should become autonomous, so that their objectives can be achieved more effectively.

As out - of - school and adult education has been making slow progress compared with the rapid expansion in school services, and the number of people without adequate education has been increasing each year, greater importance will be placed, during the next ten years, on adult and out - of - school training, which must be implemented effectively and rapidly. Also, collaboration will be encouraged amongst vocational training and youth development units through the establishment of a coordination centre for the development of low-level manpower.

3. There should be a rational system to improve the quality of education at the post - primary levels during the next ten years by accelerating the teaching of science and technology and putting new methods into practice. For example, the improvement and rationalization of curricula aimed at promoting students' initiative, the study and understanding of social psychology and changing society, how to cope with problems of everyday life, and the adaptability of the individual in modern society. In addition, the introduction of modern teaching methods, evaluation techniques and guidance services will be accelerated.

4. It is expected that by 1980 the demand for instructors at all levels will rise rapidly as the number of students increases in proportion to the population growth. The number of school age children who will remain in school longer will inevitably become larger. Therefore, the need for instructors with university degrees will be greater, and the demand for teachers in sciences, mathematics, agriculture, technical subjects and foreign languages is expected to increase in proportion to the country's economic and social progress. To prepare an adequate number of qualified teachers to meet the future demand, new techniques and advanced teaching methods are to be introduced into the teachers' training programme, such as the use of broadcasting and language laboratories. Moreover, there should be regular orientation programmes for teachers in the form of pre - service and in - service training. This also includes special courses for senior officials, such as school headmasters, heads of academic sections, and educational supervisors, in order to achieve mutual understanding, exchange opinions and encourage leadership. It is proposed to establish training centres for this purpose. In higher education, exchange of lecturers between various universities will also be encouraged. This will include the use of facilities and the exchange of academic knowledge among university lecturers. As for adult and out - of - school education, professionals will be urged to teach and give advice on improvement of the curriculum. For vocational education, there should be better cooperation among factories, private enterprises and other vocational training institutions. In engineering and other technical subjects, occasional exchanges of instructors between various educational institutions and industrial enterprises should be arranged. Also instructors' welfare should be improved by providing better living conditions.

5. As for the development of rural education during the next ten years, understanding of educational and rural development concepts are to be stressed through the promotion of community schools. The subjects to be taught include agricultural technology, natural resources preservation, conservation of agricultural products, marketing credit cooperatives, light industry and regional development. Teaching

and training in such fields are to be conducted at all levels of rural education. The setting up of schools in large towns to halt the mass influx of students to the capital city will have to be based on consideration of the type of training that will help prepare the students to make a real contribution to the provincial society. Moreover, means to employ redundant manpower in more useful activities should be developed in order to solve unemployment problems in rural areas. Such schemes as cultivation of rotation crops and the use of labour for community development will be explored. These can be encouraged through simultaneously training and giving advice through adult education and other vocational training programmes.

6. Education through private agencies : There will be more qualified teachers in private schools since the establishment of the Private Teacher Training Centre. During the next ten years, there will be more need for education than the State can provide; therefore, improvement of the quality of education in private schools has to be accelerated to help raise the national standards. Private colleges which provide standard courses on technical subjects, business administration and technology are going to be popular in the future. However, they should have a standard high enough to be comparable to those of state colleges and universities.

7. Budget for education. If the annual budget during the next ten years is insufficient the Government should provide more funds for educational development from other sources, i.e. municipal budget, college tuition fees, private donations and other additional sources. There should be short-term and long-term plans for educational expenditure as regards capital and operating budgets. Study of appropriate construction methods and the economical use of funds will help to reduce educational expense. Rational utilization of available resources, such as proper allocation of teachers and teaching equipment, promotion of teachers' academic qualifications, better utilization of school buildings and extension of teaching hours will contribute to the reduction of educational expenditure.

8. Education and regional development. During the next ten years, economic growth in the principal growth areas in the provinces will influence the development of regional universities. As universities in Bangkok concentrate more on postgraduate training, research work and training of specialists, regional universities should be expanded to provide comprehensive courses in sciences and social studies as a basis for regional development. However, consideration will also be given to the capital's urban area, a locality suitable for establishing community colleges offering two - year courses. These colleges should be branches of the existing universities which have experience in sciences and technology. Their curriculum would be a continuation from the upper secondary level.

9. If the Youth Development Centre fulfills its function of producing local leaders, increasing rural employment and raising productivity of trained youths who in the past have had no opportunity to continue their studies, then the various social problems in rural areas, such as disguised unemployment, inequality of income and other related social problems, will be eased. As for urban youth, the arrangement of suitable curricula for non - formal education and training, and the expanding industries in the cities will help to solve part of the unemployment problem. Moreover, if in-service training in industry as practised abroad is carried out by private enterprises shortage of skilled manpower will be alleviated.

It is expected that if, within the next ten years, the population growth rate can be reasonably controlled, problems of educational development will be reduced, and the education system will be able to supply effectively the country's social and economic needs.

Educational Development Projects for the Third Plan

There are altogether 84 projects, 65 of which are carried over from the Second Plan and 19 new ones. They can be divided into four categories.

1. Primary and Kindergarten.
2. Secondary, Teacher Training, Vocational and Higher Vocational.
3. Higher Education.
4. Adult and Special education.

Primary and Kindergarten Levels:

During the Plan period, primary education still ranks very high in order of priority, since it is not only the foundation of all other levels of education but also the only education available to the majority of the people. The important projects in this category are :

1. Projects to increase quantity :

(a) All schools under the Changwat Administrative Organization, both at the lower and upper Prathom levels, will admit more students during the Plan period : about 555,000 additional students at the Lower Prathom, and about 514,000 at the Upper Prathom.

(b) As for the schools under the Elementary Department of the Ministry of Education, about 11,900 more students will be admitted at the Lower Prathom and about 24,400 more at the Upper Prathom level.

2. Projects to improve quality :

(a) Free textbooks for needy students : Since a great many students cannot afford to buy textbooks, and therefore lose the chance to study after school hours, it is expected that during the Plan period 6,410,500 textbooks will be distributed. The cost of this project will be about 103.00 million baht.

(b) Project to solve the problem of shortage of teachers in hardship areas : Two measures will be taken. First, scholarships will be given to teacher trainees, on the condition that they return to teach in remote areas for twice the duration of the grant. There will be 1,000 scholarships per year (5,000 for the whole period of 5 years) costing about 27.00 million baht. Secondly, 3,000 houses will be built for teachers in remote areas, at a total cost of 144.00 million baht.

c) Project to improve local schools and make them community centres. There will be 539 schools under this project. They will become community centres, rendering services to both adults and young people and bringing about closer cooperation between the schools and the community in their endeavour to organize education and to develop the area. The total expenses for the project will be 7.65 million baht.

Secondary, Teacher Training, Vocational and Higher Vocational Levels:

1. Secondary Education

The expansion of upper Prathom education will allow a number of students to continue their education at the lower secondary level during the Third Plan. It is to be expected that the number of students finishing M.S. 3 will also increase very rapidly. In order to enable students to obtain a job after leaving school at any level, a terminal type of curriculum will be widely provided. There are altogether ten projects for secondary education development. The more important ones are :

(a) Projects to increase quantity :

(i) Secondary education organizations and the Government Pre-University Schools. About 247,500 more students will be admitted into the lower secondary level (M.S. 1-3), and about 38,300 more into the Upper Secondary classes during the Plan period.

(ii) **Project to open Amphoe - Level Secondary Schools.** During the Plan period, a lower secondary school will be built in every amphoe previously without one. A total of 180 schools will be constructed and by the last year of the Plan 60,480 students will be enrolled. The budget for this project will be 225.00 million baht.

(b) **Projects to improve quality.**

(i) **Project to improve secondary schools in the rural areas.** This project is to improve and expand the curriculum, especially in agriculture and other subjects closely related to the day-to-day life of the community. A total of 198 schools will come under this project, 48 at the provincial level and 150 at the Amphoe level. The total expense will be 72.08 million baht. The project is expected to receive partial assistance from UNICEF.

(ii) **Project to open new schools to discourage migration.** This project is to improve the quality of the schools in certain provinces in order to stop students from moving into the Central Region more than is necessary, especially at the upper secondary level. It is expected that 38 schools in larger provinces, where there is already something to build on will be improved. This will be done by building more laboratories for industrial and agricultural crafts, and sciences, and more libraries. Also three out of four teachers in these schools will have degree qualifications. The total expense will be 52.13 million baht.

(iii) **Project to open a Training Centre for private school teachers.** A Centre will be opened during Fiscal Year 1975, to train private school teachers and to help improve academic standards and teaching methods. The project will also train administrators for private schools. The total expense is 20.55 million baht.

Moreover, a pilot project might be attempted on the two - shift system to help solve the problem of increasing the quantity of educational services with limited resources.

2. Vocational Education (Secondary Level)

Since the number of students in the ordinary stream of the secondary level is rapidly increasing and its curriculum has also been greatly revised, the need to organize lower secondary schools (vocational stream) is not so great. During the Plan period the number of vocational students enrolled at the lower secondary level will gradually decrease. In fact, these schools are likely to be closed down during the Fourth Plan. At the upper secondary level in the vocational stream, all the successful projects started during the Second Plan will be improved. That is to say, enrollment will be increased to meet the needs of middle level manpower, with special emphasis on agriculture. Curricula will also be revised to meet the needs of the labour market. More modern equipment will be provided and teachers qualifications raised. The more important projects for upper secondary level (vocational stream) are :—

(a) **To increase quantity.**

(i) Projects on Agricultural Schools, Industrial Trade Schools, Commercial and Foreign Language Schools: The number of vocational students at the lower secondary level will be decreased from 3,800 in the year 1971 down to 1,700 by the end of the Plan, with a view to dissolving vocational education at this level eventually. On the other hand, 16,300 more students will be admitted into the upper secondary level in the vocational stream (M.S. 4 - 5 - 6), and by the end of the Plan the total number of students is expected to be 78,800.

Moreover, during the Plan period, ten new agricultural schools are expected to be opened in the provinces, at the rate of two schools a year. It is estimated that by the end of the Plan there will be only 195 agricultural students left in the lower secondary level (M.S. 1 - 3), but 6,231 more will be admitted in the upper secondary level for Agriculture (M.S. 4 - 5 - 6), and a total of 4,165 students will be admitted into the Higher Teaching Certificate Level (Vocational and Agricultural).

It is estimated that by the end of the Third Plan there will be 1,429 students in the lower secondary level (M.S. 1 - 3) of the Trade Schools, Commercial Schools and Foreign Language Schools; 57,809 vocational students in the upper secondary level (M.S. 4 - 5 - 6), and 5,481 students in the Higher Vocational Certificate level.

(b) Projects to improve quality.

(i) Project on Agricultural Schools : Twenty four existing Agricultural Schools will be improved (out of this number, ten have already been improved in accordance with the Loan Project Colleges for Vocational Education Development during the Second Plan. There are then only fourteen schools and college left to be improved during the Third Plan.) This will be done with a view to meeting the needs of the country in agricultural training both in quality and quantity. The buildings will be repaired and improved, water resources and land will be developed, more equipment and teaching materials will be provided. Teachers will get opportunities to further their studies up to degree level, both in Thailand and abroad. Support will be given to acquiring assistance from abroad. The total budget for this project is 345.70 million baht.

(ii) Project on Trade and Commercial Schools : The schools will be expanded and improved in order to produce more manpower, both at the skilled labour and technician levels, to meet the needs of the country. According to the project, teaching and training evaluation as well as practical work in the laboratory will be improved. Standardized equipment and teaching materials will be provided. Experts in these branches will be engaged to train teachers and staff so that they can work more efficiently. Seventy two trade schools will come under this project (eleven of which were under the Loan Project for Vocational Education Development of the Second Plan) as well as eleven Industrial trade schools and six commercial and foreign language schools. The total budget for the development of trade schools will be 739.36 million baht, and 422.03 million baht for the commercial schools.

3. Vocational Education (Higher level):

(a) Project to expand quantity: There will be 10,400 more students admitted into five Technical Colleges. It is estimated that by the end of the plan there will be 22,200 students.

(b) Project to improve quality : Five Technical Colleges and Higher Vocational Schools will come under this project. More qualified teachers will be provided to meet the increasing number of students. A new group of teaching staff will be recruited for the afternoon shift, so that both shifts will enjoy maximum efficiency in teaching and learning. More modern tools, equipment, and machinery will be acquired to replace old ones and to meet the needs of an increasing number of students. More experts will help train the students, and teachers will be given support to further their studies both in the country and abroad. The total budget for this project will be 421.58 million baht.

4. Teacher Training :

The number of teachers increased rapidly during the Second Plan period. In the Third Plan, therefore, stress will be on improving quality. The more important projects are as follows:

(a) Project to train teachers with degrees in Education : With the seven existing Colleges of Education and the new ones that may be opened during Third Plan, it is expected that 4,820 more regular students will be admitted at the degree level, and 5,000 more as evening students. By the end of the Plan period there will be 11,000 regular students and 11,900 evening students. This project will aim at training graduate level teachers to work in Teacher Training Institutes. The budget for this project will be 400.05 million baht.

(b) Project to train teachers at the Certificate level: During the Third Plan every teacher training college and school will be expanded in order to admit a total of 26,900 more regular students at the certificate level. It is expected that by the end of the Plan there will be a total of 69,000 regular students (43,000 at certificate level and 26,000 at higher certificate level.) For the evening courses at certificate level, there will be a total of 20,000 students. The project will aim at improving the quality by providing enough teachers for the students, as well as better qualified teachers. All teacher training institutes will be encouraged to make more use of new materials and technologies. Some teacher training schools will be moved to four new and modern sites. The Rural Teacher Training Project will be accelerated to encourage more teachers to go out and teach in the rural areas and to become community leaders at the same time. The budget for this project is estimated at 1,259.54 million baht.

Higher Education :

More graduates at the first degree level in agriculture, engineering, medicine, sciences and education will be produced. Several Universities will open Research Institutes or Graduate Schools to meet the needs of the country in research work. Existing institutions such as the Institute of Population Studies, Asian Studies Institute, Thai Studies Institute, and the School of Tropical Medicine, should begin to operate more efficiently. The Universities should lay the foundation for producing textbooks for higher education.

1. Chulalongkorn University : Expansion and improvement will be made in teaching, research and training of graduates at the Bachelor, Higher Certificate, and Masters Degree levels in engineering, medicine, pharmarcy, commerce and accountancy, sciences, arts, education, architecture, public relations, economics, political science, law, veterinary science, and practical chemistry. According to the target, it is estimated that, at the beginning of the Plan, 3,320 new students will be admitted at the Bachelor level and lower, and 3,550 at the end of the Plan. At the Postgraduate level, 1,200 candidates will be enrolled during the first year and 1,500 by the last year of the Plan. It is estimated that during the last year of the Plan there will be a total 15,100 students at the Bachelor level and below and 2,800 postgraduate students, 15,074 first degree and certificate holders and 4,970 higher than first degree holders. The total budget is 766.41 million baht.

2. Kasetsart University. Expansion and improvement will be made in the teaching, research and production of graduates both at the Bachelor and Master's degree levels in the following Faculties : Agriculture, Fisheries, Forestry, Veterinary Science, Engineering, Sciences and Arts, Economics, Education, and Graduate Studies. The work will be carried out in accordance with the Loan Project from the World Bank for the development of the University. Improvement will be made at both campuses: Bang Khen and Kamphaeng Saen. The target for new students enrollment at the Bachelor degree level in 1972 is 1,480 and 1,880 in 1976. The number of undergraduate students will be 4,930 in 1972 and 6,795 in 1976. The number of graduate students will be 550 in 1972 and 850 in 1976. It is estimated that during the Plan period, there will be a total of 6,100 graduates of first and higher degrees. The total budget for this project is 479.45 million baht.

3. Thammasat University : Expansion and improvement will be made in the teaching, research and production of graduates at the Certificate, Bachelor and Master's degree levels in the following Faculties: Political Science, Economics, Law, Commerce and Accountancy, Social Administration, Liberal Arts, Journalism and Mass Media. A total of 1,730 new students will be admitted at the first degree level in 1972, 2,170 in 1976. It is estimated that during the Third Plan, there will be a total of 8,165 graduates of Bachelor degrees and higher. Moreover, plans are being made to introduce science or a new course in the faculty of Liberal Arts, evening course in statistics and mathematics, and a graduate course in Business Administration within the Faculty of Commerce and Accountancy. Improvements will also be made in administration and library service, as well as expansion in Volunteer Service at the graduate level, not to mention improvement in the quality of other studies. The total budget is 222.26 million baht.

4. Mahidol University : Expansion and improvements will be made in the teaching, research and production of graduates at the Diploma, Bachelor, Higher Certificate, Master's and Doctorate levels in the following Faculties: Medical Sciences, Pharmacy, Dentistry, Siriraj Hospital Medical School, Rama Thibodi Hospital Medical School, Medical Technology, Public Health, Tropical Medicine, and the Graduate School. According to the target, the number of new students at the Bachelor and Diploma levels will be 950 in 1972, and 1,090 in 1976. At the Higher Certificate, Master's Degree and Doctorate levels, the number of new students to be admitted in 1972 is expected to be 250, which will rise to 370 in the last year of the Plan. It is estimated that the number of undergraduates at the Diploma and first degree levels will be 4,288 in 1972, and 5,396 in 1976. At the Higher Certificate, Master's and Doctorate Levels, the total number of students is estimated at 250 in 1972 and 500 in 1976. By the end of the Plan, the number of graduates at the Diploma and Bachelor degree levels will be 7,505, and 1,257 at the Higher Certificate, Master's and Doctorate levels. Also, during the Plan period, a new project to open a Faculty of Social Science and Humanities will be prepared as well as a Master Plan for a new Campus at Salaya in Nakhon Pathom, to be established on about 1,200 rai of land. The total budget for Mahidol University Development is 1,363.57 million baht.

5. Silpakorn University : Expansion and improvements will be made in the teaching, research and production of graduates at the first degree level in the following Faculties: Sculpture and Painting, Arts, Education, Sciences and Architecture. In 1972, 455 new students will be enrolled, and 736 in 1976. At the Master's degree level, 25 graduate students will be admitted in 1972 and 50 in 1976. During the period of the Third Plan, the Faculty of Liberal Arts will be opened and the Institute of Archaeology will offer a graduate course. Also, the Faculty of Architecture will extend courses at the Master's and Higher Certificate levels. Administration and welfare, as well as housing for Faculty members, will be improved. The total budget is 154.03 million baht.

6. Chiang Mai University : Expansion and improvements will be made in the teaching, research and production of graduates at the Bachelor degree level in the following Faculties: Humanities, Social Science, Sciences, Agriculture, Education, Medicine, Engineering. According to the target 2,105 new undergraduates will be admitted in 1972 and 2,660 in 1976. Postgraduate courses will be offered in the Faculties of Sciences, Social Science, and Humanities, with 100 postgraduate students admitted each year.

It is estimated that the total number of undergraduates will be 7,060 in 1972 and 10,152 in 1976. There will be a total of 220 postgraduate students admitted in the last year of the Plan. During the five years of the Plan, 9,200 graduates of Bachelor degree level will be produced and 435 postgraduates with Master's degrees. Also preparations will be made to expand the following departments: Pharmacy, Dentistry, Medical Technology, with a view to establishing new Faculties in the future. The total budget is 801.13 million baht.

7. Khon Kaen University : Expansion and improvements will be made in the teaching, research and production of graduates in the following Faculties: Agriculture, Engineering, Sciences, and Education. According to the target, 840 new undergraduates will be admitted in 1972 and 1,110 in 1976. The total number of undergraduates will be increased from 2,070 in 1972 to 3,620 in 1976. During the five year period of the Plan there will also be a project to offer Nursing courses up to Bachelors degree level, and Engineering up to higher certificate level. Postgraduate courses will be offered in Agriculture and Engineering. It is estimated that there will be a total of 3,355 graduates with Bachelor's degrees and the total budget is 389.07 million baht.

8. Prince of Songkhla University. Expansion and improvements will be made in the teaching, research, and the production of graduates in the following Faculties: Sciences, Engineering, Education. According to the target, the number of new undergraduates to be admitted in 1972 is 685, and 1,275 in 1976. The total number of undergraduates will increase from 1,380 in 1972 to 4,100 in 1976. During the five year period, 2,190 will be graduated. Plans to open the following new Faculties will be prepared during this period: Agriculture, Social Science, Humanities, and Medicine. The total budget is 555.35 million baht.

9. National Institute of Development Administration (NIDA) : Expansion and improvements will be made in the teaching, research and production of postgraduates in the following Faculties: Public Administration, Business Administration, and Development Economics. According to the target 200 new postgraduate students will be admitted in 1972, and 310 in 1976. The Faculty of Applied Statistics which admits undergraduates, will be dissolved in 1973. The total number of postgraduate students will increase from 540 in 1972 to 730 in 1976. During the five year period 1,150 postgraduates will be trained The total budget is 79.43 million baht.

10. King Mongkut Institute of Technology: Expansion and improvements will be made in the teaching, research and production of graduates in technology and degree qualified teachers in vocational education (both teachers of theory and teachers for the laboratories), engineers at degree level, as well as technicians at degree and diploma levels. An increasing supply of skilled manpower will be made available to industry. The three campuses of King Mongkut Institute of Technology will be under this project: Thon Buri, North Bangkok, and Nonthaburi. The Thon Buri campus will admit 525 new students at degree and diploma levels in 1972, 770 in 1976.

The North Bangkok Campus will admit 425 new students at Certificate level at the beginning of the Plan and 480 at the end of the Plan; 140 new students at the Bachelor degree level in 1972 and 190 in 1976. 12 postgraduate students will be admitted in 1973.

The Nonthaburi Campus will admit 300 new student at diploma level, 60 at first degree level in 1972, while 130 new students at first degree level will be admitted in 1976. 20 postgraduate students will be admitted in 1974.

The tôtal number of students in the three campuses will increase from 3,100 in 1972, to 3,800 in 1976. The total budget is 116.50 million baht.

11. Ram Kamhaeng University : The University will conduct teaching, research and training of graduates at first degree level in the following Faculties: Law, Business Administration, Education, and Humanities. Unlimitted numbers of students will be admitted, since this is an open University. The tuition fees collected from the students will be used to operate the University. The Government will allot 125 million baht to help meet expenses during the Plan.

12. University Development Project : This projict will cooperate and coordinate with all other Universities to organize education at the Master and Doctorate level in Mathematics, Physics, Chemistry, Biology and Economics, with a view to training teaching staff for the Universities. It is estimated that, in 1972, 121 new postgraduate students will be admitted. This number will increase to 136 in 1976. At the Doctorate level, 15 students will be sent abroad (3 for each branch) for further studies. It is estimated that during the five year period of the Plan, the following will have returned and become teachers at universities :

	Master's Degree :	Ph.D.
Mathematics	50	6
Physics	48	6
Chemistry	70	6
Biology	86	6
Economics	40	6

The budget for this project is included in the budget of the Universities concerned.

13. The English Language Project : Coordination for the teaching of the English Language at levels higher than Bachelor Degrees, as well as intensive training will be organized. New techniques and methods of teaching, as well as textbooks, test forms, teaching materials and achievement tests will be encouraged. It is estimated that, in 1972, 310 civil servants, university students and lecturers will be receiving intensive training, and 425 in 1976. In 1972,125 teachers of English will be trained in the new methods. This number will increase to 300 in 1976.

According to the Ten - Year Project the English Language Centre will admit and train 3,000 people in the Intensive English Course and 2,000 teachers of English in the new methods. The recurrent budget during the Plan period is 15.4 million baht (not including construction and other).

Adult Education and Other:

1. Adult Education and Non - Formal Education:

There are a number of adults who have never been to school and others who while having finished Prathom 4, are still illiterate owing to lack of further education. Education should, therefore, be made a continuing process so that all people can fully develop their potential. During the Third Plan, Adult Education and Non - Formal Education are high on the priority list. The more important projects are :

(a) Adult Education Development Project of the Elementary Education Department: This is aimed at reducing the rate of illiteracy, as well as encouraging people to continue their education. Loss of literacy will also be remedied. Adult Education programmes will be revised and improved both in the ordinary and vocational stream. Emphasis will be given to short vocational courses in domestic, industrial, and agricultural subjects. The courses will be closely related to the needs of the local labour market. The number of students under this project will be 44,000 at the beginning of the Plan and 130,800 as it ends. The total budget is 208.00 million baht.

(b) Short Courses Development Project : Department of Vocational Education. This project is sub-divided into a project to improve the 45 Mobile Vocational Training Units, and the existing four Polytechnic schools, both in the rural and urban areas. Nine more Mobile Units will be formed with assistance from USOM for equipment and teaching materials; 44,350 students will be admitted in 1972, and 89,550 in 1976. The total budget is 162.44 million baht.

2. Special Education and other : The more important projects are :

(a) Project to train more physical education teachers : More students at degree level will be admitted at the Physical Education College in Bangkok. The total number of students at the end of the Third Plan is estimated to be 1,200. During the Plan period 250 teachers at degree level will be graduated each year. The College of Physical Education in Chiang Mai will train teacher at the certificate level. New Colleges of Physical Education will be established at Maha Sarakham and Yala. The number of Physical Education Teacher Training students at the certificate level will increase from 210 in 1972 to 810 in 1976. The total budget is 68.00 million baht.

(b) Research Project and Education Technology Centre, Department of Educational Techniques : Research and analysis will be carried out oncurricula, textbooks, educational materials and teaching methods, with a view to using the results of the research to assist in the improvement of education at all levels. The Centre will be established in 1973, to carry out research and testing as well as disseminate modern techniques in education. The Centre will also cooperate with INNOTECH OF SEAMEO. The total budget is 9.97 million baht.

(c) Coordination and Service Centre, Office of the Under-Secretary of State for Education. This project is aimed at making the Office of the Under-Secretary of State a centre for information and coordination in educational guidance and training at the Ministerial level, which at present is under several Departments and Institutions both in theory and practice. It will act as a Centre to train and advise officials whenever necessary. The total budget is 2.79 million baht.

3. Youth Development Projects : Mindful of the necessity to accelerate the development of young people skills and education both in the Central and Regional Areas, so that they can usefully serve their country, Youth Development and Promotion Projects, which are the responsibility of the National Youth Promotion Committee, will receive very high priority during the Third Plan. The more important projects are :

(a) Integrated Rural Youth Development Project : Expansion and improvemens will be made at the Youth Leader Centre in Lop Buri with special emphasis on vocational subjects. Other short courses will be organized to suit rural conditions. Reading, agriculture, and security training will be provided through the mass media and other means.

During the Third Plan a Youth Training Centre will be set up in the South at Satun and one in the Northern Region.

(b) Urban Youth Leader Training Project : This is to comply with the Local Development Project being organized by university students, and to provide opportunities for urban youths who lack opportunities for continuing education and others who are still unemployed, to be trained and to develop constructive attitudes towards society. The total budget is 62.12 million baht.

TABLE 16-4

Third Plan Target Number of Students and Undergraduates

(Number of students)

Education Level	1972	1973	1974	1975	1976
Kindergarten	137,000	148,000	160,300	173,200	189,000
Ministry of Education	22,500	23,100	24,100	24,800	26,600
Local Administrative Organizations	13,100	13,200	14,200	15,100	15,800
Municipality	3,400	3,700	4,000	4,300	4,600
Private Schools	98,000	108,000	118,000	129,000	142,000
Lower Primary Education	4,948,900	5,123,400	5,310,400	5,512,500	5,703,500
Ministry of Education	79,900	82,400	83,400	84,500	85,500
Local Administrative Organizations	4,085,000	4,221,000	4,371,000	4,522,000	4,665,000
Municipality	230,000	243,000	261,000	282,000	304,000
Private Schools	554,000	577,000	595,000	624,000	649,000
Upper Primary Education	1,013,300	1,110,000	1,232,000	1,379,000	1,555,000
Ministry of Education	164,000	173,000	178,000	179,000	181,000
Local Administrative Organizations	479,000	651,000	669,000	806,000	972,000
Municipality	64,300	66,900	70,000	73,400	77,000
Private Schools	306,000	310,000	315,000	321,000	325,000
Lower Secondary Education - Academic Stream	553,000	611,000	669,000	732,000	798,000
Government	323,000	370,000	419,000	470,000	523,000
Private	230,000	241,000	250,000	262,000	275,000
Upper Secondary Education - Academic Stream	77,600	86,900	96,200	104,800	111,900
Government	47,500	55,900	64,200	71,900	78,100
Private	30,100	31,000	32,000	32,900	33,800
Secondary Education - Vocational Stream[2]	67,400	69,200	72,200	74,200	76,500
Lower Secondary Education	3,100	2,600	2,200	1,900	1,700
Upper Secondary Education	64,300	66,600	70,000	72,300	74,800
Technical Institute	17,800	21,100	23,100	25,100	26,500
Technical level	14,200	17,200	19,000	20,900	22,200
King Mongkut Institute of Technology					
(Day)	3,100	3,400	3,600	3,700	3,800
(Twilight)	500	500	500	500	500
Teacher Training	85,200	93,700	101,000	109,200	119,400
Teacher Training Certificate level					
(Day)	46,000	52,000	57,000	63,000	69,000
(Twilight)	21,000	21,000	21,000	21,000	23,000
Bachelor degree					
(Day)	6,450	7,440	8,370	9,210	10,070
(Twilight)	7,900	8,900	9,900	10,900	11,900
Postgraduate	550	560	630	790	930
Vocational Teacher Training	3,300	3,800	4,100	4,300	4,500

Education Level	1972	1973	1974	1975	1976
University3/	48,390	51,490	55,370	59,370	63,750
Diploma and Bachelor degree					
Humanities	4,040	4,130	4,310	4,590	5,000
Education	4,880	5,730	6,300	6,760	7,200
Fine Arts	920	940	1,050	1,230	1,410
Social Science and Law	15,000	14,440	14,890	15,170	15,990
Science	2,970	3,390	3,800	4,070	4,640
Engineering	3,720	4,210	4,590	5,140	5,600
Medical Science	8,520	9,290	10,200	11,360	12,440
Agriculture	4,030	4,390	4,640	4,950	5,230
Postgraduate (all fields)	4,300	5,000	5,600	5,900	6,200
Adult Education	56,220	68,840	84,780	104,810	130,800
Vocational Training	44,350	51,450	60,450	74,450	89,500
Special Education	9,510	10,350	11,240	12,000	12,500
Physical Education	1,330	1,570	1,630	1,710	2,000
Degree level	1,120	1,360	1,300	1,200	1,200
Higher Certificate level	210	210	330	510	800
Artistic	400	460	500	540	600
Music and Dramatic Arts	1,500	1,630	1,750	1,900	2,000
Total	7,061,900	7,449,090	7,879,920	8,365,080	8,880,950

1/ Target number of students is according to the Educational Development budget including projects specified in the reserve budget.

2/ Target for Government Schools only.

3/ Target for 9 universities only, excluding Ram Kamhaeng University unlimitted enrollment.

TABLE 16 - 5

Number of Enrollment by University during Third Plan

(Number of students)

University	1972	1973	1974	1975	1976
Kasetsart University	5,480	5,960	6,460	6,960	7,650
Khon Kaen University	2,070	2,630	2,900	3,180	3,380
Chulalongkorn University	14,160	15,430	16,180	16,750	17,330
Chiang Mai University	7,170	7,970	8,740	9,660	10,370
Thammasat University	10,860	10,200	10,240	10,080	10,370
Mahidol University	5,300	4,910	5,220	5,620	5,900
Silpakorn University	1,340	1,590	1,870	2,180	2,490
Prince of Songkhla University	1,380	2,000	2,680	3,450	4,110
The National Institute of Development Administration (NIDA)	540	600	650	710	730
Faculty of Medical Science (Mahidol & Chiang Mai Universities)[1]	90	200	430	780	1,420
Total	48,390	51,490	55,370	59,370	63,750

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[1] Number of Enrollment to be increased according to the target of the project for expansion of manpower in the field of medical science during 1972—1976

TABLE 16-6

Annually Intake Target of Students during Third Man

(Number of students)

Education Level	1972	1973	1974	1975	1976
Prathom 1	1,567,300	1,602,300	1,634,300	1,668,500	1,708,700
Ministry of Education	20,700	21,000	21,300	21,500	21,700
Changwat Administrative Organizations	1,276,000	1,304,000	1,328,000	1,354,000	1,386,000
Municipalities	68,600	73,300	79,000	84,000	90,000
Private Schools	202,000	204,000	206,000	209,000	211,000
Prathom 5[1]	390,400	434,400	486,300	542,500	613,000
Ministry of Education	58,300	59,200	60,100	60,200	60,400
Changwat Administrative Organizations	201,000	241,000	289,000	341,000	408,000
Municipalities	23,000	24,200	25,200	26,300	27,600
Private Schools	108,000	110,000	112,000	115,000	117,000
M.S. 1[2]	211,000	233,000	255,000	274,000	298,000
Government Schools	126,000	145,000	162,000	177,000	197,000
Private Schools	85,000	88,000	93,000	97,000	101,000
M.S. 4 (Academic Stream)	46,500	50,800	55,700	95,400	62,600
Government Schools	29,300	33,200	37,600	40,900	43,700
Private Schools	17,200	17,600	18,100	18,500	18,900
M.S. 4 (Vocational Stream)	25,300	25,800	26,900	27,700	28,400
Government Schools	25,300	25,800	26,900	27,700	28,400
Teacher Training	28,870	32,540	36,540	39,830	42,260
First Year of Educational Certificate	19,600	22,500	23,400	25,400	25,400
First Year of Higher Educational Certificate	6,010	6,090	9,000	9,650	11,900
First Year and Third Year of Degree Level	3,260	3,950	4,410	4,780	4,960
University	11,100	11,800	12,700	13,800	14,700
	11,100	11,800	12,700	13,800	14,700

Remark :

[1] Ratio of continuing students from Prathom 4 to Prathom 5

Year	1971/72	1972/73	1973/74	1974/75	1975/76
Percentage	42	44	47	50	56

[2] Ratio of Continuing Students from Prathom 7 to M.S. 1

Year	1971/72	1972/73	1973/74	1974/75	1975/76
Percentage	82	81	81	80	80

Ratio of continuing students in M.S. 1 in 1972/73 will be less than in 1971/72 due to the increase in the number of Prathom 7 students during the Second Plan period.

TABLE 16 - 7

Number of Graduates by Education Level during the Third Plan period (1972 - 1976)

(Number of graduates)

Education level / Academic Year	1972/73 Graduate	1973/74 Graduate	1974/75 Graduate	1975/76 Graduate	1976/77 Graduate
Primary Education					
Grade 4	922,000	962,000	1,019,000	1,083,000	1,145,000
Grade 7	273,000	300,000	326,000	369,000	418,000
Secondary Education					
M.S. 4	148,000	165,000	184,000	204,000	228,000
M.S. 5	20,700	25,300	29,600	34,600	38,700
M.S. 6	17,200	17,100	18,900	19,400	20,300
Technical Institute	5,500	7,200	8,200	8,900	9,800
Vocational Teacher Training	1,200	1,700	1,800	1,800	1,900
Teacher Training Certificate Level	18,400	18,400	19,200	20,600	22,300
Teacher Training Higher Certificate Level	6,300	7,200	8,100	9,300	11,000
Higher Education					
(Bachelor's degrees)					
College of Education	2,600	2,900	3,200	3,600	4,000
King Mongkut Institute of Technology	270	360	390	440	440
Nine Universities Humanities	970	910	870	910	1,020
Education	930	1,060	1,320	1,440	1,510
Fine Arts	170	170	170	180	210
Social Sciences and Law	2,670	2,790	2,690	2,720	2,830
Sciences	530	710	760	900	1,000
Engineering	610	740	810	970	1,090
Medical Science[1]	980	1,070	1,150	1,380	1,520
Agriculture	970	1,010	1,120	1,260	1,270

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[1] All educational fields in the faculty of Medical Science including Nursing and Public Health.

TABLE 16 - 8

Third Plan Educational Development Budget

(million baht)

Government Agency / Projects	Budget (1)	Reserve (2)	Total (1) + (2)
Primary and Kindergarten	16,764.57	781.67	17,546.24
Department of Local Administration, Ministry of Interior	15,282.45	607.56	15,890.01
1. Continuing Projects			
1.1 Lower Primary Education	12,295.02	80.00	12,375.02
1.2 Upper Primary Education	2,683.06	35.23	2,718.29
1.3 Rectifying Teachers' Shortage in Remote Areas	27.00	—	27.00
1.4 Construction of Teachers' Housing in Remote Areas	144.00	104.00	248.00
2. New Projects			
2.1 Distribution of Textbooks to Poor Children	103.00	42.00	145.00
2.2 Improvement of Schools as Community Institutions	7.65	—	7.65
2.3 Improvement Study and Teaching Materials	22.72	—	22.72
2.4 Establishment of Changwat and District Officers	—	222.20	222.20
2.5 Re - establishment of Educational Inspectors	—	88.60	88.60
2.6 Establishment of Educational Supervisors for Changwat Administration	—	35.53	35.53
Department of Elementary Education, Ministry of Education	1,482.12	174.11	1,656.23
1. Continuing Projects			
1.1 Primary Education	837.87	8.36	836.23
1.2 Training and Orientation	198.17	49.50	247.67
1.3 Educational Welfare	151.07	8.00	159.07
1.4 Kindergarten Education	249.75	83.25	333.20
1.5 Research, Standard Control and Extension of Primary Education	55.26	25.00	80.26
Secondary, Teacher Training, Technical Institute	7,490.74	191.50	7,682.24
Department of Secondary Education, Ministry of Education	4,154.87	107.00	4,261.87
1. Continuing Projects			
1.1 Government Schools	3,594.67	69.00	3,663.67
1.2 Comprehensive Schools	34.90	—	34.90
1.3 Pre - University Schools	66.60	—	66.60
1.4 Teacher Training and Orientation	61.32	—	61.32
1.5 Evaluation and Fellowship for Educational Promotion	48.17	—	48.17
2. New Projects			
2.1 Establishment of Amphoe Secondary Schools	225.00	—	225.00
2.2 Improvement of Rural Secondary Schools	72.08	—	72.08
2.3 Improvement of Regional Secondary Schools	52.13	—	52.13
2.4 Analysis of Examination Questions and Results	—	9.00	9.00
2.5 Development of Teaching and Studying Methods	—	29.00	29.00
Department of Vocational Education, Ministry of Education	2,019.43	84.50	2,103.93
1. Continuing Projects			
1.1 Development of Agricultural Schools	345.70	—	345.70
1.2 Development of Trade Schools	739.36	40.00	779.36

Remark: Reserve budget comprises educational development expenditure of lower priority items. It may come from additional national budget as well as foreign loans and grants.

(million baht)

Government Agency / Projects	Budget (1)	Reserve (1)	Total (1) + (2)
1.3 Development of Commercial and Industrial Schools	422.03	22.50	444.53
1.4 Development of Technical Institutes	421.58	22.00	443.58
1.5 Development of Vocational Education	34.17	—	34.17
1.6 Teacher Training and Orientation	14.71	—	14.71
1.7 Agricultural Engineering Centre	9.98	—	9.98
1.8 Mechanical Service Division	12.60	—	12.60
1.9 Supervision of Student and Examination Registration and Inspection of Vocational Schools	12.95	—	12.95
1.10 Design and Supervision of Construction Projects	6.35	—	6,35
Department of Teacher Training, Ministry of Education	1,316.44	—	1,316.44
1. Continuing Projects			
1.1 Teacher Training at Certificate Education	1,259.54	—	1,259.54
1.2 Educational Orientation	29.51	—	29.51
1.3 Improvement of Teachers' Qualification	14.27	—	14.27
1.4 Psychological Research	7.16	—	7.16
1.5 Compile Questionaires on Standard Tests	5.96	—	5.96
University Level	5,452.27	196.22	5,648.48
Universities (Continuing and New Projects)	4,935.72	196.22	5,131.94
1. Kasarsart University	479.45	—	479.45
2. Khon Khan University	389.07	17.22	406.30
3. Chulalongkorn University	766.41	69.50	835.91
4. Chiang Mai University	801.13	4.63	805.76
5. Mahidol University	1,363.57	6.70	1,370.27
6. Prince of Songkhla University	555.35	76.18	631.53
7. Thammasat University	222.26	—	222.26
8. Silpakorn University	154.04	17.84	171.87
9. National Institute of Development Administration	79.44	—	79.44
10. Ram Kamhaeng University	125.00	—	125.00
11. University Development1/ (administration)	—	4.15	4.15
Department of Teacher Training, Ministry of Education	400.05	—	400.05
Continuing Projects			
1. Teacher Training at Degree Levels	400.05	—	400.05
Department of Vocational Education, Ministry of Education	116.50	—	116.50
New Projects			
1. King Mongkut Institute of Technology	116.50	--	116.50
Adult and Special Education and Others	1,504.42	71.47	1,575.89
Department of Elementary and Adult Education, Ministry of Education	208.00	23.00	231.00
Continuing Projects			
1. Adult Education	208.00	23.00	231.00
Department of Vocational Education, Ministry of Education	167.00	18.00	185.00
Continuing Projects			
1. Short Courses and Mobile Trade Training Units	162.44	18.00	180.44
2. ARD Vocational Training Project	4.56	—	4.56

1/ Only for administrative budget allocated at the Office of the National Education Council. Subsidies for Masters degree and Ph.D level are allocated in the budget of each university.

(million baht)

Government Agency / Projects	Budget (1)	Reserve (2)	Total (1) + (2)
National Youth Promotion Committee, Office of the Prime Minister	62.12	2.47	64.59
New Projects			
1. Rural Youth Development	62.12	2.47	64.59
2. Urban Youth Development			
Department of Secondary Education, Ministry of Education	662.05	—	662.05
Continuing Projects			
1. Administration and Supervision of Private Schools	641.50	—	641.50
New Projects			
1. Establishment of Teacher Training Centre for Private Schools	20.55	—	20.55
Department of Physical Education, Ministry of Education	152.01	—	152.01
Continuing Projects			
1. Increase the Output of Physical Education Teachers			
1.1 Degree Level	27.83	—	27.83
1.2 Certificate Level	40.18	—	40.18
2. Promotion of Sports Activities in Schools and community	9.00	—	9.00
3. Improvement of Physical Education	24.00	—	24.00
4. Boy Scouts Development	13.40	—	13.40
5. Junior Red-Cross Development	4.60	—	4.60
6. Improvement of National Stadium	15.00	—	15.00
New Projects			
1. Student Health promotion	7.00		7.00
2. Student Inspector Project	6.00	—	6.00
3. Orientation and Training	5.00	—	5.00
Department of Technical Education, Ministry of Education	56.59	20.00	76.59
Continuing Projects			
1. Establishment of New Curriculum	2.73	—	2.73
2. Promotion of Textbook Production	30.80	20.00	50.80
3. Survey and Research on Education	9.97	—	9.97
4. Educational Materials Centre	6.27	—	6.27
5. Exhibition on Children's Day	2.34	—	2.34
6. Planetarium and Observatory	4.48	—	4.48
Department of Fine Arts, Ministry of Education	43.90	—	43.90
Continuing Projects			
1. Musical Arts	17.41	—	17.41
2. Artistry Education	10.14	—	10.14
3. Musical Arts (Chiang Mai)	16.35	—	16.35
Office of the Under Secretary of State, Ministry of Education	152.75	8.00	160.75
Continuing Projects			
1. Expansion of Radio Service for Education	30.00	—	30.00
2. Coordination with International Organizations	73.44	8.00	81.44
3. Regional Educational Development	26.82	—	26.82
4. Educational Development of Region II	10.70	—	10.70
5. Educational Planning	9.00	—	9.00
New Projects			
1. Service and Central Coordination Guidance Units	2.79	—	2.79
Total	31,212.00	1,240.85	32,452.85

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APPENDIX CHAPTER 8

Agriculture and Cooperative Development Expenditures

1. Government Budget

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
I. Office of the Under - Secretary of State (Ministry of Agriculture)	46.71	50.33	57.45	65.55	72.20	292.24	
On - Going projects :	44.62	46.70	50.28	57.30	63.10	262.00	
A. Agricultural Economic Research	15.41	15.87	16.33	17.75	19.50	84.86	
1. Farm Data Survey	8.30	8.35	8.40	9.00	9.50	43.55	
2. Mobile Farm Development Unit	0.26	0.28	0.29	0.30	0.31	1.44	
3. Farm Development Project in the Central Plain Irrigated Area	1.16	1.20	1.25	1.30	1.54	6.45	
4. Farm Development Project in the Phetchaburi Plain Irrigated Area	0.31	0.33	0.35	0.40	0.45	1.84	
5. Farm Development Project in the Northeastern Plain Irrigated Area	1.26	1.28	1.30	1.35	1.39	6.58	
6. Farm Development Project in the Northern Plain Irrigated Area	0.18	0.20	0.22	0.25	0.27	1.12	
7. Farm Development Project in the Southern Plain Irrigated Area	0.20	0.22	0.24	0.26	0.32	1.24	
8. Study on Marketing Cost and Prospect of Dairy Industry in Thailand	0.19	0.21	0.23	0.27	0.29	1.19	
9. Study on Cost of Production of certain Economic Crops	0.13	0.15	0.18	0.20	0.25	0.91	
10. Study on Farm Inputs	0.10	0.15	0.17	0.20	0.26	0.88	
11. Study on Farm Prices, Paid and Received	0.51	0.51	0.53	0.55	0.55	2.65	
12. Study on Marketing and Processing of Oil Seeds	0.10	0.15	0.20	0.25	0.55	1.25	
13. Study on Economics of Fertilizer Use	0.10	0.13	0.15	0.18	0.22	0.78	
14. Development of Irrigated Areas	2.05	2.10	2.15	2.50	2.80	11.60	
15. Agricultural Economics	0.45	0.47	0.50	0.55	0.60	2.57	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
16. Local Marketing Information Services	0.11	0.14	0.17	0.19	0.20	0.81	
B. Agricultural Development Centres	20.21	29.30	31.45	34.88	37.60	153.44	
1. Agricultural Centre in Ditches and Dikes Project Area	6.50	9.00	9.50	10.50	12.00	47.50	
2. Phetchaburi Demonstration Farm	2.00	1.40	1.55	1.58	1.60	8.13	
3. Northeast Agricultural Centre	5.00	8.00	8.50	9.00	10.00	40.50	
4. Huey Sithon Demonstration Farm	2.00	1.90	1.90	2.30	—	8.10	
5. Northern Agricultural Centre	4.00	5.00	4.00	5.00	7.00	28.51	
6. Rainfall Control Research	0.71	4.00	4.00	5.00	7.00	20.71	
C. Agricultural Aviation Services							
1. Agricultural aviation service	9.00	1.53	2.50	4.67	6.00	23.70	
New Projects :	2.09	3.63	7.17	8.25	9.10	30.24	
A. Agricultural Economic Research							
1. Agricultural Economic Research							
1.1 Demand and Supply of Farm Commodities	0.09	0.10	0.15	0.25	0.32	0.91	
2. Production Economics							
2.1 Economic Study of Ground Water Use for Agriculture	0.41	1.00	1.70	2.14	2.20	7.45	
3. Agricultural Marketing							
3.1 Study of Livestock Marketing and Demand for Meat	0.09	0.10	0.15	0.20	0.22	0.76	
3.2 Study on Distribution of Farm Products	—	0.10	0.15	0.20	0.20	0.65	
3.3 Bangkok Market Information Service	—	0.10	0.15	0.20	0.25	0.70	
3.4 Local Market Information Service (North)	—	—	0.10	0.12	0.13	0.35	
4. Agricultural Development Planning	1.00	1.30	1.80	1.60	1.60	7.30	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
5. Personnel Development for Agricultural Economic	—	0.23	0.25	0.30	0.33	1.11	
B. Economic Studies in Agricultural Centres							
1. Central Plain Agricultural Centre (Chai Nat)							
1.1 Local Market Information Service (Central)	—	0.10	0.12	0.14	0.15	0.51	
2. Rubber Research Centre							
2.1 Local Market Information Service (South)	—	0.10	0.10	0.10	0.10	0.40	
C. Economic Programmes Attached to Agricultural Centres							
1. Southern Agricultural Centre	—	—	1.50	2.00	3.00	6.50	
2. Research on Grape Production	0.50	0.50	1.00	1.00	0.60	3.60	
2. Department of Agricultural Extension	96.62	114.56	129.39	142.53	159.85	642.95	
On - Going Projects	106.42	124.96	140.39	154.23	172.25	699.65	
A. Economic Crops.	25.06	28.26	33.04	35.53	39.90	161.79	
1. Maize	0.96	1.21	1.32	1.42	1.45	6.36	
2. Soy beans and Groundnuts	19.00	19.00	23.00	23.00	25.00	109.00	
3. Coconut	2.00	3.00	4.00	5.60	6.00	20.60	
4. Sericulture	0.75	2.41	1.76	1.54	2.94	9.40	
5. Kenaf and Jute	0.30	0.35	0.40	0.55	0.70	2.30	
6. Cotton	0.70	0.80	0.90	1.50	1.60	5.50	
7. Pineapple	0.15	0.15	0.18	0.20	0.21	0.89	
8. Fruits	0.80	0.90	1.00	1.20	1.40	5.30	
9. Vegetables	0.20	0.22	0.24	0.26	0.30	1.22	
10. Vegetable Seeds Multiplication	0.20	0.22	0.24	0.26	0.30	1.22	
B. Crop Production Promotion	9.90	11.30	12.25	15.00	16.85	65.30	
1. Large - Scale Rice Demonstration Farms	5.00	5.50	6.00	7.50	8.00	32.00	
2. Rice Multiplication	1.20	1.30	1.40	1.50	1.60	7.00	
3. Upland Rice	0.40	0.50	0.60	0.70	0.75	2.95	
4. Crop Rotation	2.50	3.00	3.10	4.00	5.00	17.60	
5. Fertilizer and Soil Improvement	0.80	1.00	1.15	1.30	1.50	5.75	

(million baht)

Goverment Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
C. Plant Pests Control	49.00	60.60	67.70	74.80	84.40	336.50	
1. Yellow Orange Leaf Virus Disease Control	19.00	20.00	22.00	25.00	28.00	114.00	
2. Rice Seed Treatment	1.50	2.00	3.00	3.00	3.50	13.00	
3. Plant Disease Control	10.00	12.00	14.00	16.00	18.00	70.00	
4. Locust Control	5.00	6.00	7.00	8.00	9.00	35.00	
5. Insects and Pest Control	10.00	16.00	16.00	16.00	18.00	76.00	
6. Rodent Control	3.00	4.00	5.00	6.00	7.00	25.00	
7. Weed Control	0.50	0.60	0.70	0.80	0.90	3.50	
D. Agricultural Institutions Promotion	5.50	5.90	6.20	6.40	6.70	30.70	
1. Farmer Groups	4.00	4.30	4.50	4.60	4.80	22.20	
2. 4 - H Clubs	1.50	1.60	1.70	1.80	1.90	8.50	
E. Training and Information	7.16	8.50	10.20	10.80	12.00	48.66	
1. Audio - Visual Aids	3.00	4.00	4.50	4.60	4.80	20.90	
2. Agricultural Information	3.50	4.00	4.50	5.00	6.00	23.00	
3. Agricultural Extension Training Centre	0.66	0.50	1.20	1.20	1.20	4.76	
New Projects :	8.80	10.40	11.00	11.70	12.40	54.30	
1. Plant Pest Control Volunteers	4.00	5.50	6.00	6.50	7.00	29.00	
2. Home - Economics	0.30	0.90	1.00	1.20	1.40	5.30	
3. Coconut Insects Control	4.00	4.00	4.00	4.00	4.00	20.00	
3. Department of Agriculture	126.54	143.34	161.96	183.17	210.33	825.34	
On - Going Projects :	114.34	127.90	144.95	161.40	180.86	727.50	
A. Survey Experimentation and Research	52.94	55.10	60.20	66.10	71.46	303.80	
1. Experimentation in Agricultural Experimental Stations	25.00	27.00	30.00	33.00	36.00	151.00	
2. Research and Experimentation in Ditches and Dikes Project Area	1.00	1.10	1.20	1.40	1.50	6.20	
3. Plant Pest Survey and Research	4.50	5.20	5.50	6.10	6.60	27.90	
4. Botanical Survey and Research	0.64	0.80	1.00	1.10	1.16	4.70	
5. Soils and Fertilizers Research	12.00	12.50	13.00	14.00	15.00	66.50	
6. Strengthening Plant Protection	2.80	3.00	3.50	3.50	3.20	16.00	Assistance from UNDP
7. Agricultural Toxicology	5.00	5.50	6.00	7.00	8.00	31.50	
8. Soil Fertility Survey	2.00	—	—	—	—	2.00	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
B. Economic Crops Development	61.40	72.80	84.80	95.30	109.40	423.70	
1. Rubber, Coffee, Pepper and Oil Palm	24.00	26.00	27.50	28.00	30.00	135.50	Assistance from UN
2. Cotton	14.00	15.00	16.80	18.00	20.00	83.50	Assistance from France
3. Maize and Sorghum	7.70	11.10	14.70	18.50	23.20	75.20	
4. Coconut	3.00	5.00	7.00	9.00	12.00	36.00	
5. Kenaf	3.00	4.00	4.50	5.00	5.50	22.00	
6. Sericulture	3.00	10.00	12.90	14.80	16.90	62.60	Assistance from Japan
7. Farm Mechanization Training	1.70	1.70	1.70	2.00	1.80	8.90	
New Projects :	12.20	15.44	16.96	21.77	29.47	95.84	
1. Oil Crops.	8.75	11.40	12.50	16.80	24.00	73.45	Assistance from Japan
2. Seeds	1.00	1.20	1.40	1.80	2.00	7.40	
3. Locust Research	0.45	0.34	0.26	0.27	0.27	1.59	Assistance from UK.
4. Vegetables	2.00	2.50	2.80	2.90	3.20	13.40	Assistance from Republic of China
4. Rice Department	62.50	71.20	76.80	81.50	90.10	382.10	
1. Variety Tests	5.00	6.00	7.00	8.00	10.00	36.00	
2. Rice Experiment and Multiplication Station	25.00	28.00	29.00	30.00	32.00	144.00	
3. Rice Technological Research	13.00	15.00	17.00	18.00	19.00	82.00	
4. Rice Protection Research	9.00	10.00	10.00	10.00	12.00	51.00	
5. Agricultural Experiments in Ditches and Dikes Project Area	3.50	4.00	4.50	5.00	5.50	22.50	
6. Soil Fertility Research	2.00	2.50	3.00	3.50	4.00	15.00	
7. Survey and Farm Equipment Research	3.00	3.50	4.00	4.50	5.00	20.00	
8. Farm Mechanization Training Centre	2.00	2.20	2.30	2.50	2.60	11.60	
5. Department of Fisheries	67.60	66.36	73.74	75.10	80.20	362.60	
On - Going Projects	54.45	60.75	65.84	69.41	73.99	324.44	
A. Development of Fresh - Water Fishery	30.90	29.80	32.70	38.52	42.25	174.17	
1. Fresh - Water Fishery Development	23.00	21.00	23.00	28.00	31.00	126.00	
2. Fishery Development in Ditches and Dikes Project Area	3.00	3.20	3.50	3.70	3.75	17.15	
3. Fisheries Research at Khon Kaen Agriculture Centre	0.40	0.45	0.45	0.47	0.50	2.27	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
4. Huey Sithon Fishery Demonstration	0.50	0.55	0.60	0.65	0.75	3.05	
5. Rehabilitation of Public Fishing Areas	3.00	3.50	4.00	4.50	5.00	20.00	
6. Fisheries Development in Ubon Rachathani Reservoir	1.00	1.10	1.15	1.20	1.25	5.70	
B. Development of Brackish-Water Fishery	2.30	2.10	2.14	2.24	2.34	11.12	
1. Brackish - Water Fishery Development	2.30	2.10	2.14	2.24	2.34	11.12	
C. Development of Marine Fishery	20.50	28.00	30.00	27.50	28.10	134.10	
1. Marine Fishery Development	19.00	23.00	24.00	25.00	25.50	116.50	
2. Marine Biological Centre at Phuket	1.50	5.00	6.00	2.50	2.60	17.60	
D. Development of Fishing Occupations	0.75	0.85	1.00	1.15	1.30	5.05	
1. Development of Fish Processing Industries	0.75	0.85	1.00	1.15	1.30	5.05	
New Projects :	13.15	5.61	7.50	5.69	6.21	38.16	
A. Development of Fresh - Water Fishery	1.11	1.12	1.13	1.25	1.41	6.02	
1. Fisheries Development in large impounded Waters	1.11	1.12	1.13	1.25	1.41	6.02	
B. Development of Brackish-Water Fishery	6.03	1.80	1.70	1.36	1.38	12.22	
1. Coastal Agricultural Development	6.03	1.80	1.70	1.36	1.38	12.22	
C. Fisheries Resources Conservation	6.01	2.69	4.67	3 08	3.47	19.92	
1. Fisheries Resources Conservation Programme	6.01	2.69	4.67	3.08	3.47	19.92	
6. Livestock Department	109.43	121.20	126.37	134.70	150.05	646.75	
On - Going Projects :	98.95	111.91	116.51	134.00	144.38	608.51	
A. Livestock Promotion and Improvement Programme							
1. Livestock Improvement	30.00	34.50	40.00	48.60	51.72	204.82	
2. Improvement of Breeds	3.00	3.33	3.29	3.54	3.34	16.50	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
3. Artificial Insemination	3.06	3.18	3.30	3.43	3.56	16.53	
4. Improvement and Expansion of Swine Breeds	4.00	3.32	3.31	3.46	3.40	17.49	
5. Promotion of Dairy-Cow Raising	2.73	1.96	2.05	2.29	2.28	11.31	
6. Livestock Development in Ditches and Dikes Project Area	1.50	1.71	1.83	1.84	1.86	8.74	
7. Animal Nutrition	6.50	8.20	7.47	7.60	7.31	37.08	
8. Animal Nutrition at Huey Sithon Demonstration Farm	0.80	0.81	0.66	0.56	0.57	3.40	
B. Animal Diseases Control Programme							
1. Vaccine Production	8.00	9.20	8.53	8.34	8.54	42.61	
2. Animal Diseases Control	33.00	36.80	40.23	44.03	48.58	202.64	
C. Research Programme							
1. Veterinary Research	3.00	3.10	3.20	3.30	3.40	16.00	
2. Animal Husbandy Research	2.00	2.30	2.64	4.11	6.95	18.00	
3. Swine Breeding Improvement and Expansion Research	1.36	3.50	2.76	2.90	2.87	13.39	
New Projects :	10.48	9.29	7.10	5.70	5.67	38.24	
A. Livestock Promotion and Improvement Programme							
1. Nongwai Irrigated-Agriculture Pioneer Project	0.15	0.82	0.44	0.33	0.22	1.96	
2. Meat Productivity Improvement (Cattle and Buffalo)	8.83	6.17	4.02	3.28	3.29	25.59	
2.1 Livestock Promotion	(5.00)	(3.00)	(2.00)	(1.50)	(1.50)	(13.00)	
2.2 Breeding Improvement	(3.00)	(2.50)	(1.42)	(1.17)	(1.19)	(9.28)	
2.3 Sterility and Breeding	(0.83)	(0.67)	(0.60)	(0.61)	(0.60)	(3.31)	
3. Livestock Development in the Northeast	1.50	2.30	2.64	2.09	2.16	10.69	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
7. Royal Forest Department	119.83	121.66	136.97	155.01	174.96	708.43	
On - Going Projects :	119.83	114.66	128.97	146.01	164.96	674.43	
A. Survey and Research							
1. Forest Resources Survey	3.66	3.70	3.80	3.90	4.00	19.06	
2. Pulp and Paper Raw Materials Survey	2.08	—	—	—	—	2.08	
3. Sericultural Research	4.22	5.50	6.32	7.27	8.36	31.67	
4. Watershed Management Research	2.50	2.60	2.70	2.80	2.90	13.50	
5. Botanical and Zoological Research	0.80	0.83	0.87	0.91	0.95	4.36	
6. Wood Technology Research	2.30	2.64	3.04	3.50	4.02	15.50	
7. Lac Culture Research and Promotion	1.10	1.15	1.20	1.25	1.30	6.00	
B. Forest Protection and Control							
1. Forest Reservation	13.79	15.00	16.00	17.00	18.00	79.79	
2. Forest Protection	26.94	30.98	35.63	40.97	47.11	181.63	
3. Control of Forests under Concession	17.12	—	—	—	—	17.12	
4. Wild life Conservation	2.40	2.64	2.90	3.19	3.51	14.64	
C. Forest Management and Improvement							
1. Forest Management	4.43	6.00	7.00	9.00	11.00	37.43	
2. Forest Improvement	3.40	3.74	4.11	4.52	4.98	20.75	
3. Teak Plantation	15.99	18.39	21.15	24.32	27.97	107.82	
4. Other Wood Plantation	12.04	13.85	15.93	18.32	21.00	81.14	
5. Management of Botanical Gardens and National Parks	7.06	7.64	8.32	9.06	9.86	41.94	
5.1 Botanical Gardens	(0.79)	(0.80)	(0.85)	(0.90)	(0.95)	(4.29)	
5.2 Arboreta Gardens	(0.80)	(0.82)	(0.85)	(0.88)	(0.90)	(4.25)	
5.3 National Parks	(4.00)	(4.40)	(4.84)	(5.32)	(5.85)	(24.41)	
5.4 Forest Parks	(1.47)	(1.62)	(1.74)	(1.96)	(2.16)	(8.99)	
New Projects :	—	7.00	8.00	9.00	10.00	34.00	
1. Watershed Management and Improvement	—	7.00	8.00	9.00	10.00	34.00	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
8. Office of Under - Secretary of State (Ministry of National Development)	8.19	19.06	24.96	26.23	32.18	110.62	
1. Sappaya Multi - Purpose Expansion Project	8.19	7.73	7.79	7.32	6.43	37.46	
2. Warehouse and Silo for Cooperatives (Revolving Fund)	—	11.33	17.17	18.91	25.75	73.16	
9. Department of land Development	76.53	87.28	97.00	98.20	105.30	464.31	
On - Going Projects	69.70	74.93	81.60	87.50	94.30	408.03	
A. Land Classification	18.00	19.00	21.00	22.00	24.00	104.00	
1. Land Capability Classification	8.00	8.00	8.40	8.40	9.10	41.90	
2. Land Tenure Survey and Mapping	5.00	5.00	5.60	5.60	5.90	27.10	
3. Land Classification on both sides of Highways	5.00	6.00	7.00	8.00	9.00	35.00	
B. Land Improvement and Conservation	27.00	29.50	32.60	35.50	38.30	162.90	
1. Land Fertility Improvement	9.00	10.00	11.00	12.00	13.00	55.00	
2. Soil and Water Conservation	13.00	14.00	15.00	16.00	17.00	75.00	
3. Land Improvement of Unsuitable Soil for Cultivation	0.90	1.00	1.10	1.20	1.30	5.50	
4. Land Utilization Information Advisory Services	2.80	3.00	3.50	4.00	4.50	17.80	
5. Watershed Management	1.30	1.50	2.00	2.30	2.50	9.60	
C. Land Policy	8.70	9.43	10.00	11.00	12.00	51.13	
1. Land Tenure Improvement	0.60	0.83	0.85	0.90	1.10	4.28	
2. Land Development and Improvement	7.00	7.00	7.40	8.00	8.50	37.90	
3. Land Consolidation	0.30	0.60	0.65	0.80	0.90	3.25	
4. Land Economic Research and Statistics	0.60	0.65	0.70	0.80	0.90	3.65	
5. Legal Advice	0.20	0.35	0.40	0.50	0.60	2.05	
D. Soil Survey	16.00	17.00	18.00	19.00	20.00	90.00	
1. Soil Survey	10.55	15.50	16.45	17.40	18.35	78.25	
2. Soil Analysis	1.45	1.50	1.55	1.60	1.65	7.75	
3. Soil Survey and Land Classification	4.00	—	—	—	—	4.00	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
New Projects :	6.83	12.35	15.40	10.70	11.00	56.28	
1. Land Development in Irrigation Areas	6.58	12.00	15.00	10.20	10.40	54.18	
2. Land Reclamation	0.25	0.35	0.40	0.50	0.60	2.10	
10 Department of Credit and Marketing Cooperatives	13.47	15.28	17.73	20.58	23.93	90.98	
On - Going Projects :	7.50	8.41	10.89	13.04	16.19	56.03	
1. Credit Cooperatives	4.50	5.00	6.00	8.00	11.00	34.50	
2. Rice Marketing and Rice Mill Cooperatives	1.50	2.00	3.40	3.50	3.60	14.00	
New Projects :	5.97	6.87	6.84	7.54	7.74	34.95	
1. Warehouse and Silo for Cooperatives	1.50	1.15	1.17	1.19	1.21	6.22	
2. Credit for Production and Market Project	0.99	1.00	1.05	1.07	1.09	5.20	
3. Farm Products Warehouse Construction and Rice Mill Leasing Project	1.98	2.00	1.67	2.35	2.46	10.46	
4. Thai - Japan Cooperative Demonstration	1.50	1.72	1.75	1.77	1.80	8.54	
5. Hog Raising Promotion	—	1.00	1.19	1.16	1.18	4.53	
11 Department of Land Cooperatives	56.04	72.17	88.49	103.26	115.65	435.21	
On - Going Projects :	56.04	65.77	77.99	90.26	98.65	388.71	
1. Cooperative Service Organization and Extension (in coordinating plan area)	8.00	7.50	10.50	12.50	8.50	47.00	
2. Northern Cooperative Service Organization and Extension	—	—	—	—	—	—	
3. Central Cooperative Service Organization and Extension	24.50	27.50	30.00	33.00	38.00	153.00	
4. Southern Cooperative Service Organization and Extension	—	—	—	—	—	—	
5. Northeast Cooperative Service Organization and Extension	—	—	—	—	—	—	
6. Northern Settlement Cooperative	10.00	11.00	13.00	15.00	16.00	65.00	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
7. Central Settlement Cooperative	3.00	3.19	4.00	3.68	3.75	17.62	
8. Southern Settlement Cooperative	6.00	6.50	6.41	8.00	11.00	37.91	
9. Northern Cooperative Rent and Purchase Land	0.50	2.00	3.00	4.00	5.00	14.50	
10. Central Cooperative Rent and Purchase Land	2.00	3.00	4.00	5.00	6.00	20.00	
11. Southern Cooperative Rent and Purchase Land	0.30	2.00	3.00	4.00	5.00	14.30	
12. Dairy Cattle Raiser Cooperative Organization	1.69	3.00	4.00	5.00	5.32	19.01	
13. Cooperative Union Organization.	0.50	0.08	0.08	0.08	0.08	0.37	
New Projects :							
1. Eastern Cooperative Service	—	7.00	10.50	13.00	17.00	47.50	
2. Northeast Cooperative Rent and Purchase Land	—	3.00	4.50	5.00	7.00	19.50	
3. Eastern Cooperative Rent and Purchase Land	—	2.00	3.00	4.00	5.50	14.50	
	—	2.00	3.00	4.00	4.50	13.50	
12 Royal Irrigation Department	1,296.10	1,387.30	1,441.60	1,353.00	1,433.00	6,911.00	
On - Going Projects :	1,192.00	1,177.00	1,194.00	1,198.00	1,248.00	6,009.00	
A. State Irrigation Construction Programme	674.00	582.00	572.00	515.00	520.00	2,863.00	
1. Mae Yom, Diversion Irrigation	20.00	—	—	—	—	20.00	
2. KiewLom and Distribution System	14.00	30.00	30.00	—	—	74.00	
3. Phitsanulok, Diversion Dam and Distribution System	10.00	30.00	50.00	70.00	95.00	255.00	
4. Chao Phraya, Drainage	40.00	45.00	50.00	60.00	65.00	260.00	
5. Kra Siew Dam and Distribution System	35.00	40.00	42.00	40.00	—	157.00	
6. Vachiralongkorn Storage Dam and Distribution System	160.00	180.00	200.00	225.00	225.00	990.00	
7. Phetchaburi Distribution, Extension	45.00	—	—	—	—	45.00	
8. Pran - Buri Storage Dam and Distribution System	25.00	30.00	40.00	60.00	60.00	215.00	
9. Dom Noi Pump System and Supply System	30.00	40.00	50.00	—	—	120.00	
10. Lam Pao, Storage Dam and Distribution System	50.00	52.00	—	—	—	102.00	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
11. Nam Phong Diversion Irrigation First - Second Stage	60.00	40.00	—	—	—	100.00	
12. Nam Oon Storage Dam and Distribution System	60.00	65.00	65.00	—	—	190.00	
13. Pattani, Diversion Dam and Distribution System	20.00	30.00	45.00	60.00	75.00	230.00	
14. Sirikit Dam	105.00	—	—	—	—	105.00	
B. General Irrigation Construction Programme							
1. Diversion Irrigation	150.00	162.00	165.00	180.00	200.00	857.00	
Sub - Total	150.00	162.00	165.00	180.00	200.00	857.00	
2. Irrigation Tanks	126.00	155.00	170.00	180.00	190.00	821.00	
Sub - Total	126.00	155.00	170.00	180.00	190.00	821.00	
3. Ditches, Dikes	50.00	55.00	55.00	65.00	65.00	290.00	
Sub - Total	50.00	55.00	55.00	65.00	65.00	290.00	
4. Pit - Pond	5.00	7.00	7.00	7.00	7.00	33.00	
5. Underground Water	7.00	15.00	17.00	20.00	22.00	81.00	
6. Pumping Irrigation	45.00	60.00	65.00	80.00	90.00	340.00	
7. Lake and Pond Clearing	5.00	6.00	6.00	6.00	6.00	29.00	
8. Improvement of Peoples Irrigation Construction	5.00	5.00	5.00	5.00	5.00	25.00	
9. Diver Training	12.00	15.00	17.00	20.00	23.00	87.00	
10. Irrigation Feasibility Survey and Design	50.00	50.00	50.00	50.00	50.00	250.00	
Sub - Total	129.00	158.00	167.00	188.00	203.00	845.00	
C. Road Construction on Embankment Programme							
1. Road Construction on Embankment	63.00	65.00	65.00	70.00	70.00	333.00	
Sub - Total	63.00	65.00	65.00	70.00	70.00	333.00	
New Project :							
A. State Irrigation Construction Programme							
1. Bang - Rang Dam	—	15.00	20.00	25.00	40.00	100.00	
2. Bang Phra Dam	24.10	88.30	116.60	—	—	229.00	
Sub - Total	24.10	103.30	136.60	25.00	40.00	329.00	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
B. General Irrigation Construction Programme							
1. Land Consolidation	5.00	7.00	9.00	25.00	35.00	81.00	
2. Feeder Road Construction	5.00	20.00	22.00	25.00	30.00	102.00	
3. Concrete Lining Improvement	10.00	20.00	20.00	20.00	20.00	90.00	
4. Improvement of Supply System for Raising Productivity	60.00	60.00	60.00	60.00	60.00	300.00	
Sub - Total	80.00	107.00	111.00	130.00	145.00	573.00	
Total (New Project)	104.10	210.30	247.60	155.00	185.00	902.00	
Large Dam Construction	24.10	103.30	136.60	24.00	40.00	329.00	
General Irrigation	80.00	107.00	111.00	130.00	145.00	573.00	
Total (On - Going Projects)	1,192.00	1,177.00	1,194.00	1,198.00	1,248.00	6,009.00	
Large Dam Construction	674.00	482.00	572.00	515.00	520.00	2,863.00	
Tanks (8)	126.00	155.00	170.00	180.00	190.00	821.00	
Diversion Irrigation	150.00	162.00	165.00	180.00	200.00	857.00	
Ditches and Dikes	50.00	45.00	55.00	65.00	65.00	290.00	
General Irrigation	129.00	158.00	167.00	188.00	203.00	845.00	
Road Construction on Embankment	63.00	65.00	65.00	70.00	70.00	333.00	
12. Agricultural State Enterprises	45.97	62.43	155.32	174.44	174.37	612.53	
A. Rubber Estate Organization	10.54	9.88	0.12	—	1.72	22.26	
1. Second High Yielding Varieties Estate	5.94	4.76	—	—	—	10.70	
2. Second Block Rubber Factory	4.60	5.12	0.12	—	1.72	11.56	
B. Office of the Rubber Replanting Assistance Fund	29.86	40.42	145.06	168.83	166.65	550.82	
1. Accelerated Rubber Replanting Scheme	29.86	40.42	145.06	168.83	166.65	550.82	
C. Fish Marketing Organization	5.57	12.13	10.14	5.61	6.00	39.45	
1. Phuket Fishery Pier	—	3.20	6.60	—	—	9.82	
2. Satun Fishery Pier	—	—	—	4.91	—	4.91	
3. Chumphon Fishery Pier	—	—	—	0.70	6.00	6.70	
4. Hua - Hin Fishery Pier	5.57	—	—	—	—	5.57	
5. Extension Samut Sakhon Fishery Pier	—	—	3.52	—	—	3.52	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
6. Extension Songkhla Fishery Pier	—	8.93	—	—	—	8.93	
D. Forestry Industry Organization	(11.33)	(8.32)	(9.75)	(8.70)	(11.69)	(49.79)	
1. Reforestation	(11.33)	(8.32)	(9.75)	(8.70)	(11.69)	(49.79)	
13. Office of the Accelerated Rural Development	37.13	51.64	56.74	63.02	68.34	276.87	
A. Water Resources Development Programme	30.00	33.00	36.30	39.95	43.00	182.25	
1. Water Resources Development	30.00	33.00	36.30	39.95	43.00	182.25	
B. Accelerated Rural Economics Development	4.80	15.30	16.63	18.00	19.40	74.13	
1. Rural Economic Business	1.80	12.00	13.00	14.00	15.00	55.80	
2. Comprehensive Package Programme	3.00	3.30	3.63	4.00	4.40	18.33	
C. Accelerated Rural Development Package Programme	2.33	3.34	3.81	5.07	5.94	20.49	
1. Cattle and Buffalo Promotion	0.61	0.67	0.73	0.80	0.88	3.69	
2. Fish Pond Promotion	0.40	0.65	0.76	0.88	0.99	3.68	
3. Field Crops Promotion	0.67	1.11	1.56	2.00	2.45	7.99	
4. Sericulture Promotion	0.65	0.91	0.76	1.39	1.62	5.33	
14. Local Administration Department	32.00	33.05	34.26	36.65	38.39	174.35	
1. People Irrigation	25.00	25.00	25.00	25.00	25.00	125.00	
2. Rice Production Improvement in the South	7.00	8.05	9.26	11.65	13.39	49.35	
Other							
Agricultural Credit	220.00	220.00	220.00	220.00	220.00	1,100.00	
Farmers' Aid Fund	150.00	150.00	150.00	150.00	150.00	750.00	
Land Acquisition Fund	33.16	35.00	40.00	45.00	50.00	203.16	
Grand Total	2,618.95	2,840.88	3,108.03	3,155.34	3,373.14	15,096.34	

2. Foreign Loans

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
1. Phitsanulok Diversion Dam and Distribution System	—	38.20	154.96	122.72	121.68	482.56	
2. Pran - Buri Storage Dam and Distribution System	—	20.80	62.40	41.60	41.60	166.40	
3. Bang - Rang Storage Dam	—	67.60	93.60	145.60	31.20	338.00	
4. Agricultural Credit	270.40	270.40	270.40	270.40	270.40	1,352.00	
Total	270.40	442.00	581.36	580.32	464.88	2,338.96	

3. Foreign Grants

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
1. Kenaf Development	2.080	2.080	2.080	2.080	2.080	10.400	
2. Rubber Development Phase II	1.244	1.244	1.244	1.244	1.244	6.220	
3. Seeds Development	2.500	4.200	2.600	—	—	9.300	
4. Research on Insecticide Application	—	2.040	0.102	0.102	—	2.244	
5. Application of Fertilizer and Soil Improvement	4.200	4.400	4.800	4.800	4.000	22.200	
6. Seed Pathology Research	—	2.540	—	—	—	2.540	
7. Weed Research	—	0.783	—	—	—	0.783	
8. Rodent Research	—	1.407	—	—	—	1.407	
9. Toxicating Substance Research	2.000	2.000	3.000	4.000	4.000	15.000	
10. Locust Research and Elimination	1.248	0.624	0.416	0.208	0.208	2.704	
11. Northern Agricultural Centre	—	4.160	4.160	2.496	0.208	11.024	
12. Northeast Agricultural Centre	1.768	1.352	1.040	0.416	—	4.576	
13. Central Agricultural Centre	2.700	2.900	3.000	3.000	2.500	14.100	
14. Agricultural Planning	2.400	2.600	2.800	2.800	2.900	13.500	
15. Agricultural Economics	0.653	0.560	0.560	0.560	0.560	2.893	
16. Forest Reservation							
17. Mobile Unit for Maintenance and Training in the Uses of Farm Machinery.	0.126	0.114	—	—	—	0.240	
18. Strengthening Plant Protection Services	13.881	17.271	17.345	20.203	22.246	90.966	
19. Development of Modern Cultivation	0.352	0.700	1.000	0.800	0.700	2.552	
20. Agricultural Extension Training Centre	0.210	0.250	0.300	0.350	0.400	1.510	
21. Fish and Shrimp Seed Centre	10.000	—	—	—	—	10.000	
22. Fishery Development in the Songkhla Lake	2.000	2.000	2.000	—	—	6.000	
23. Prawn Research and Training Centre	2.887	2.887	2.887	2.887	2.887	14.435	
24. Expansion of Prawn Cultivation	—	0.166	—	—	—	0.166	
25. Marine Biological Centre, Thai - Danish	1.000	1.000	1.000	—	—	3.000	
26. Fishery Industry Development	0.208	—	—	—	—	2.208	
Total	51.457	57.278	50.334	45.966	43.933	248.968	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
Prospective Projects							
1. Southern Agricultural Centre							
2. Mobile Unit for Maintenance and Training in the Uses of Farm Machinery							
3. Land Use Development Planning							
4. Natural Resource Inventory Survey							
5. Coordinated Agricultural Development in Irrigated Areas							
6. Grain Cooperatives							
7. Establishment of Cooperatives							
8. Multi - Purpose Cooperative at Ratchaburi							
9. Agricultural Credit							
10. Agriculture and Livestock Development Mancha - Khiri							
11. Cattle Breeding							
12. Integrated Forest Land Use in the Northern Highlands (Mae Sa Watershed)							
13. Animal Health							

APPENDIX CHAPTER 9
Industry and Mining Development Expenditure
1. Government Budget

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
Department of Industrial Promotion							
1. Industrial Service Institute. (Phase II)	3.00	3.00	2.91	3.06	3.15	15.12	
2. Loans for Small Scale Industries	—	—	—	—	—	—	Waiting for adjustment
3. Accelerating the Promotion of Handicraft Products for Export	5.00	5.00	5.00	5.00	5.00	25.00	
4. Textile Institute	2.00	4.50	4.50	3.00	—	14.00	
Department of Industrial Work							
1. Productivity Centre of Thailand	3.00	2.97	3.00	3.07	3.14	15.18	
2. Management Information System	1.00	2.00	2.00	2.00	2.00	9.00	
3. Industrial Estates	—	—	—	—	—	—	Budget for expert service
4. State Enterprise Development	0.31	0.31	—	—	—	—	
Office of the Under-Secretary of State (Ministry of Industry)							
1. Industrial Information (Data) Centre	—	0.74	3.20	2.50	—	6.44	
2. Rice Processing	2.00	2.00	2.00	2.00	2.00	10.00	
3. Control of Water and Air Pollution and Industrial Safety	1.00	1.00	1.00	1.00	1.00	5.00	
4. Sugar Institute	5.00	5.00	5.00	5.00	5.00	25.00	
Department of Science							
1. Analysis and Research Services to Industry	3.24	3.05	3.70	4.15	4.95	19.10	
1.1 Investigation on Industrial Water Pollution	(0.29)	(0.35)	(0.40)	(0.45)	(0.50)	(1.99)	
1.2 Services to Industry to Improve Techniques, Equipment and Processes	(0.97)	(0.60)	(0.75)	(0.90)	(1.50)	(4.72)	
1.3 Construction Materials Development	(1.65)	(1.00)	(1.20)	(1.35)	(1.50)	(6.70)	
1.4 Improvement of Quality Control System and Efficiency in Industry	—	(0.70)	(0.90)	(1.00)	(1.00)	(3.60)	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
1.5 Water Analysis for Industry and Public Utility	(0.33)	(0.40)	(0.45)	(0.45)	(0.45)	(2.08)	
2. Industrial Standardization	3.00	3.00	3.00	2.50	2.50	14.00	
3. Food Industry Research and Development Centre	1.72	1.00	1.00	1.00	1.00	5.72	
4. Ceramic Industry Research and Development Centre	3.00	1.00	1.00	1.00	1.00	7.00	
5. Raw Materials for Paper Industry	—	0.47	0.29	0.31	0.33	1.40	
Applied Scientific Research Corporation of Thailand							
1. Technological Research Institute (TRI)	3.00	3.00	3.00	3.00	3.00	15.00	
2. Tropical Agricultural Products Institute	—	—	—	—	—	—	
3. Pulp and Paper Industry Development	—	—	—	—	—	—	
Department of Mineral Resources							
1. Basic Geological Survey	5.00	5.00	5.00	5.00	5.00	25.00	
2. Increase Fluorite Production	3.00	5.00	4.00	4.00	4.00	20.00	
3. Increase Tin Production	5.00	5.00	5.00	5.00	5.00	25.00	
4. Increase Minerals Production for Industrial Uses	10.00	5.00	5.00	5.00	5.00	30.00	
5. Ground Water Exploration and Development	40.00	45.00	45.00	45.00	45.00	220.00	

3. Foreign Grant Projects

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
On-Going Projects							
1. Industrial Service Institute (PhaseII)	—	7.27	7.32	5.90	4.65	25.14	
2. Productivity Centre of Thailand	1.68	—	—	—	—	1.68	
3. Analysis and Research Services to Industry	0.59	1.09	—	0.99	0.29	3.75	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
4. Industrial Standardization	1.86	1.89	1.89	—	—	5.64	
5. Food Industry Research and Development Centre	1.95	1.57	0.93	0.97	1.00	6.42	
6. Technological Research Institute (TRI)	3.29	0.38	—	—	—	3.67	
New Projects							
1. Management Informations System	6.01	5.51	3.42	2.40	1.95	19.29	
2. Textile Institute	10.46	7.16	5.23	2.02	—	24.87	
3. State Enterprise Development	0.31	0.31	—	—	—	0.62	
4. Industrial Information (Data) Centre	—	2.02	3.91	3.54	—	9.47	
5. Industrial Use of starch	.312	—	—	—	—	.312	
6. Protein Foods	.416	—	—	—	—	.416	
7. Preserved Foods	.229	—	—	—	—	.229	
8. Industrial Fuel from Lignite	.208	—	—	—	—	.208	
9. Utilization of Manganese Ore	.104	—	—	—	—	104	
10. Resource Atlas Project-Thailand	4.955	.259	.174	.156	.148	5.692	
11. Instrument Repair and Calibration Centre	2.100	—	—	—	—	2.100	
12. Thai National Reference Collection Centre	.500	—	—	—	—	5.000	
13. Transportation Survey Unit	.180	—	—	—	—	.180	
14. Economic Feasibility Study	.020	—	—	—	—	.020	
15. Exploitation of Mineral Resources in Arid Areas	16.00	—	—	—	—	16.00	
16. Air Borne Geophysical Survey	10.28	—	—	—	—	10.28	
17. Mining and Ore-Dressing Equipment pool	2.00	—	—	—	—	2.00	
Total	62.914	24.149	23.664	15.976	8.038	135.741	

APPENDIX CHAPTER 10

Commerce and Services Development Expenditures

1. Government Budget

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
Ministry of Economic Affairs	6.50	6.50	6.50	6.50	6.50	32.50	
1. Promotion of Thai Nationals in Commercial Activities	2.50	2.50	2.50	2.50	2.50	12.50	
1.1 Loans for commericial activities	2.50	2.50	2.50	2.50	2.50	12.50	
1.2 Loans for providing shops							
1.3 Promotion of Provincial Companies							
2. Expansion of Marketing Abroad	1.00	1.00	1.00	1.00	1.00	5.00	
2.1 Quality Improvement and Standardizing	1.00	1.00	1.00	1.00	1.00	5.00	
2.2 Arranging representatives to visit markets abroad							
2.3 Thai Products Display Centre							
2.4 Trade exhibition abroad							
2.5 Improving and expanding commercial office abroad							
3. Market Intelligence Services	1.00	1.00	1.00	1.00	1.00	5.00	
4. Marketing Research							
5. Promotion and introducing local Products							
5.1 Introducing Thai products locally							
5.2 Local Thai products Display Centre							
6. Improving activities of Ministry of Economic Affairs							
7. Marketing Board							
8. Reserved Budget for Project excluding administrative work	2.00	2.00	2.00	2.00	2.00	10.00	(8) Reserved Budget for projects excluding administrative work.
9. Tourist Organization of Thailand	23.50	28.50	28.50	28.50	28.50	137.00	
Total	30.30	35.00	35.00	35.00	35.00	170.00	

2. Revenue from State Enterprises

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
1. Warehouse Organization	2.81	3.29	3.85	4.52	5.30	19.77	
2. Fuel Organization	101.02	112.46	125.03	141.07	158.00	638.48	
3. United Thai Hotel and Tourist Co., Ltd.	12.26	9.76	6.62	6.89	7.17	42.70	
Total	116.09	125.51	136.40	152.48	170.47	700.95	

APPENDIX CHAPTER 11

Transport and Communications Development Expenditures

1. Government Budget

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Priority I	1,718.890	1,290.49	876.19	707.738	443.035	5,036.343
Thai Highways Department	490.40	1,032.58	637.00	447.00	293.50	3,900.48
1. National Highway Construction and Rehabilitation Programme 1972 - 1976						
1.1 Construct and rehabilitate 23 National Highways, a total length of 1,345.9 kms.	852.70	556.10	326.00	144.00	—	1,878.80
2. Provincial Highway Construction and Rehabilitation Programme 1972 - 1976.						
2.1 Construct and rehabilitate 48 Provincial Highways, a total of 2,001.1 kms.	477.70	315.10	151.00	143.00	133.50	1,220.30
2.2 Bridge Construction Programme	30.00	30.00	30.00	30.00	30.00	150.00
2.3 Survey Programme — Survey and design one National Highway of 30 kms.	—	1.38	—	—	—	1.38
2.4 Pavement Programme, Bridge Replacement Programme and Maintenance Programme.	130.00	130.00	130.00	130.00	130.00	650.00
Office of Accelerated Rural Development	69.40	53.90	40.60	46.10	30.60	239.60
1. Construction Programme — Construct F_3 roads, a total length of 2,396 kms.	69.40	53.90	40.60	46.10	30.60	239.60
Public Works Department	32.92	41.21	53.10	70.82	47.41	246.46
1. Road Construction Programme. — Construct rural roads, a total length of 2,045.5 kms.	32.92	41.21	53.10	70.82	47.41	246.46
Office of Under-Secretary of State (Ministry of Communications.)	3.10	3.10	2.90	2.70	2.50	14.30
1. Regional Transport and Communications Development Programme.	1.70	1.70	1.70	1.70	1.70	8.50
2. Transport and Communication Research and Co-ordination Programme Phase II	1.40	1.40	1.20	1.00	0.80	5.80
3. Ship-Repairing Facilities Improvement Programme1/						
Inland Transport Department	4.03	5.33	5.28	4.97	4.73	24.34
1. Traffic Survey Programme 1.1 Road Traffic Survey	1.88	3.03	3.25	3.25	2.92	14.33

1/ Under consideration for aid by the British Government. Financial detail not available.

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
1.2 Commodity Classification for Pricing and Construction of Bus Terminal	0.42	0.53	0.44	0.22	0.23	1.80
2. Road Transport Efficiency Improvement Programme.						
2.1 Improvement and Extension of Transport Training School Bus Terminal Programme	—	0.05	1.59	1.50	1.58	4.72
2.2 1st Class bus terminal establishment	1.73	1.72	—	—	—	3.45
Harbour Department	4.135	13.30	32.50	26.00	19.00	94.935
1. Seamanship Training Programme	0.30	5.00	5.00	10.00	10.00	30.30
2. Aid-to-Navigation Programme Coastal Port Development Programme	—	—	15.00	5.00	5.00	25.00
3. 15 Ports Economic Survey	—	0.30	—	—	—	0.30
4. 10 Ports Engineering Survey	2.00	2.00	2.00	2.00	2.00	10.00
5. Dredging	—	6.00	10.50	9.00	2.00	27.50
6. Sattahip Port Survey Project	0.16	—	—	—	—	0.16
7. Survey and Master Plan Design for Kantang Port Project	0.65	—	—	—	—	0.65
8. Phuket Port Survey Project	0.025	—	—	—	—	0.025
9. Narathiwat Port Survey Project	1.00	—	—	—	—	1.00
10. Songkhla Port Survey Project[1]						
Hydrographic Department	0.98	3.49	1.88	3.31	0.76	10.42
1. Aid to Navigation Development Programme						
1.1 Permanent lighthouse construction	0.36	1.31	0.68	1.31	0.76	4.42
1.2 Aids to Navigation Improvement and Maintenance	0.62	2.18	1.20	2.00	—	6.00
Post and Telegraph Department	17.55	16.20	17.00	16.60	16.60	83.95
1. Local Post and Telegraph Service Expansion Programme	12.56	12.56	12.56	12.56	12.56	62.80
2. Extension of Mail Acceptance Project	4.04	3.64	4.44	4.04	4.04	20.20
3. Classification of Post Office and Staff Rating and Pricing Project	0.95	—	—	—	—	0.95
Public Relations Department	0.20	29.23	8.33	—	—	37.76
1. Expansion of Television Service Programme						
1.1 Thungsong television station	—	0.80	2.55	—	—	3.35
1.2 Trang ,, ,,	—	1.60	2.55	—	—	4.15
1.3 Ban Hui Luke ,, ,,	—	1.60	2.55	—	—	4.15
1.4 Phuket ,, ,,	—	3.55	—	—	—	3.55
1.5 Surat Thani ,, ,,	—	6.52	—	—	—	6.52

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[1] Under consideration for aid by the Japanese Government. Financial detail not available.

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
1.6 Nakhon Si Thammarat television station	—	2.61	0.34	—	—	2.95
1.7 Lop Buri ,, ,,	—	5.33	0.34	—	—	5.67
1.8 Nakhon Sawan ,, ,,	0.10	3.55	—	—	—	3.64
1.9 Phitsanulok ,, ,,	0.10	3.55	—	—	—	3.65
Civil Aviation Department	34.70	24.77	7.62	1.23	—	68.32
1. Airport Development Programme						
1.1 Mae Sot airport	15.23	—	—	—	—	15.23
1.2 Tak airport	8.50	13.00	—	—	—	21.50
1.3 Phrae airport	9.50	7.00	6.00	—	—	22.50
2. Aeronautical Radio Programme						
2.1 Tak airport	—	2.70	0.10	—	—	2.80
3. Directorate of Civil Aviation Training Centre Improvement Programme (UNDP Aid Programme)	1.47	2.07	1.52	1.23	—	6.27
3.1 Improve Air Traffic Control Training Course						
3.2 Radar Airbone Navigation Aids Maintenance Course						
3.3 Improve Flight Operation Training Course						
3.4 Establish Aero-Engine Overhaul Workshop						
State Railways of Thailand	60.185	47.38	49.98	70.008	17.935	245.488
1. Expansion of Marshalling Yard and Station Project	24.000	16.200	—	—	—	40.200
2. Acquisition of 100 Diesel Locomotive Project	—	—	22.581	49.651	5.610	77.842
3. Construction of 210 Passenger Coaches Project	18.792	—	—	—	—	18.792
4. Construction of 712 Freigth Coaches Project	17.008	—	—	—	—	17.008
5. Replacement of Bridge Project	—	9.673	9.432	9.265	9.575	37.944
6. Chachoengsao — Laem Chabang - Sattahip Line Study	0.3	—	—	—	—	0.3
7. Procurement of Concrete Sleeper Project	—	6.250	6.250	6.250	2.750	21.500
8. Rail Replacement and Welding Project	—	9.257	7.717	3.026	—	20.000
9. Expansion of Marshalling Yard and Station Project	—	6.000	4.000	1.816	—	11.816
10. Klong Sibkao-Ban Phachi Line Study	0.085	—	—	—	—	0.085
Telephone Organization of Thailand						
1. Centre for Training and Telecommunications Development Programme 1970-1972	1.29	—	—	—	—	1.29
Thai International Airways Company						
1. Workshop Programme	—	20.00	20.00	20.00	10.00	70.00
Thai Television Company						
1. Construction of Transmitting building Project1/						

1/ Detail of the Project is under consideration.

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Priority II	449.97 359.70	958.01 746.20	1,299.822 1,075.90	1,202.433 998.90	1,182.985 1,044.80	5,093.22 4,215.50
Thai Highways Department						
1. National Highway Construction and Rehabilitation Programme 1972-1976						
1.1 Construct and rehabilitate 35 National Highways, a total lenght of 1,883.7 kms.	207.80	388.90	543.40	508.00	622.80	2,270.90
2. Provincial Highway Construction and Rehabilitation Programme 1972 - 1976						
2.1 Construct and rehabilitate 91 Provincial Highways, a total length of 2,644.40 kms.	141.90	357.30	532.50	490.90	422.00	1,944.60
Office of Accelerated Rural Development						
1. Road Construction Programme						
1.1 Construct F_3 roads, a total length of 1,971 kms.	34.00	38.30	39.90	44.20	40.70	197.10
Public Works Department						
1. Road Construction Programme	11.70	25.00	39.96	82.68	56.29	215.63
1.1 Construct rural roads, a total length of 1,796.9 kms.	3.29	3.59	3.68	3.53	3.29	17.38
Inland Transport Department						
1. Road Transport Efficiency Improvement Programme						
1.1 Research on road accident and promote road safety	0.20	0.50	0.59	0.44	0.20	1.93
2. Bus Terminal Programme						
2.1 2nd Class terminal establishment	1.23	1.23	1.23	1.23	1.23	6.15
2.2 3rd Class terminal establishment	1.86	1.86	1.86	1.86	1.86	9.30
Harbour Department						
1. Sea Search and Rescue	—	—	—	4.00	4.00	8.00
Hydrographic Department						
1. Aids to Navigation Development Programme						
1.1 Construct facilities at the lighthouse	0.26	0.26	0.12	0.29	0.36	1.29

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Post and Telegraph Department						
1. Metropolitan Post and Telegraph Service Expansion Programme Phase II	20.77	19.47	16.09	8.26	5.26	69.85
Public Relations Department	0.10	14.70	15.15	—	—	29.95
1. Television Service Expansion Programme						
1.1 Construct a television station at Narathiwat	—	0.30	2.55	—	—	2.85
1.2 Construct a television station at Pattani	—	0.30	2.55	—	—	2.85
1.3 Construct a television station at Yala	—	0.30	2.55	—	—	2.85
1.4 Construct a television station at Den Chai	0.10	3.25	—	—	—	3.35
1.5 Construct a television station at Pangpruy	—	3.75	—	—	—	3.75
1.6 Construct a television station at Doi Khuntan	—	1.50	2.50	—	—	4.00
1.7 Construct a television station at Ngao	—	2.50	2.45	—	—	4.95
1.8 Construct a television station at Chiang Rai	—	0.80	2.55	—	—	3.35
1.9 Expand a television Switching station in Bangkok	—	2.00	—	—	—	2.00
Civil Aviation Department	25.93	60.88	62.88	30.70	22.40	202.79
1. Airport Development Programme						
1.1 Construct an airport at Surat Thani	—	6.00	14.00	15.00	22.30	57.30
1.2 Construct an airport at Loei	4.00	13.00	8.50	—	—	25.50
1.3 Construct an airport at Chiang Mai	11.00	31.40	28.80	—	—	71.20
2. Aeronautical Radio Project						
2.1 Acquire and install additional communication equipment at Hat Yai Airport	0.92	0.60	2.00	—	—	3.52
2.2 Acquire and install additional communication equipment at Chiang Mai Airport	9.79	6.66	7.36	10.30	—	34.11
2.3 Acquire and install additional communication equipment at Surat Thani Airport	—	—	—	3.40	0.10	3.50
Civil Aviation Training Centre						
1. Improve flight training centre	0.22	3.22	2.22	2.00	—	7.66
Directorate of Civil Aviation Royal Thai Air Force	4.22	21.37	19.95	24.20	—	69.74
1. Building Improvement Programme	—	8.33	8.80	0.70	—	17.83
2. Lighting System Improvement Programme	—	8.50	0.30	21.50	—	30.30

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
3. Fire Fighting and Rescue Equipment Improvement Programme	4.22	4.04	2.05	2.00	—	12.31
4. Don Muang Airport Communication System Improvement Programme	—	0.50	8.80	—	—	9.30
State Railways of Thailand	—	28.24	26.192	5.673	5.885	60.99
1. Installation of Signalling and Interlocking Devices	—	31.00	5.042	5.423	5.635	20.000
2. Improvement and Extension of Makkhason Workshop	—	20.000	20.000	—	—	40.000
3. Acquisition and Installation of Electric System on 100 passenger coaches	—	5.240	0.250	0.250	0.250	5.990
Priority III	358.59	680.014	681.463	634.724	568.124	922.915
Thai Highways Department	295.90	602.10	593.90	523.0	481.20	2,496.40
1. Construction and Rehabilitation of National Highways Programme 1972-1976 Construct and rehabilitate 25 routes with a total length of 1,937 kms.	214.50	418.50	435.10	315.20	237.00	1,656.30
2. Construction and Rehabilitation of Provincial Highway Programme 1972-1976 Construct and rehabilitate 39 routes with a total length of 1,261.9 kms.	81.40	183.60	158.80	172.10	244.20	840.10
Office of Accelerated Rural Development						
1. Road Construction Programme Construction of Rural Roads with a total length of 1,479 kms.	17.50	23.00	33.90	34.20	39.00	147.90
Public Works Department						
1. Road Construction Programme Construction of Rural Road with a total length of 709 kms.	4.76	6.17	13.29	28.56	32.30	85.08
Inland Transportation Department						
1. Improvement of Road Transport Service Efficiency Programme Provide management and mechanic training course biannually	0.03	0.84	0.73	0.73	0.07	2.40
Hydrographic Department						
1. Aid to Navigation Development Programme Purchase one 600 DWT lighthouse and busy tender	17.00	—	—	—	—	17.00
Post and Telegraph Department	21.40	17.56	10.40	3.56	—	52.92
1. Establishment of Surface Mail Project	21.00	14.00	10.00	—	—	45.00

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
2. First Stage Maritime Mobile Service Development Project	0.40	3.56	0.40	3.56	—	7.92
Public Relations Department						
1. Television Service Expansion Programme						
Reserve for contigencies	—	0.50	0.50	—	—	1.00
Civil Aviation Department	—	—	1.30	35.55	7.00	43.85
1. Airport Development Programme						
1.1 Phuket Airport	—	—	—	5.00	2.05	7.50
2. Aeronautical Radio Service Development Project						
2.1 Flight testing Project	—	—	—	26.85	0.50	27.37
Civil Aviation Centre						
1. Civil Aviation Training Centre Improvement	—	—	1.30	3.70	4.00	9.00
Directorate of Civil Aviation Royal Thai Air Force	2.00	20.00	19.97	1.00	0.61	43.58
1. Hi-Jack Prevention Project	—	3.00	3.00	—	—	6.00
2. Airport Development Project	2.00	17.00	16.97	1.00	0.61	37.58
State Railways of Thailand	—	9.544	7.473	7.824	7.944	32.785
1. Residential Building Construction Project	—	3.083	3.950	4.325	5.034	16.392
2. Administration Building Construction Project	—	6.461	3.523	3.499	2.910	16.393
Priority IV	243.00	357.36	429.73	512.46	667.00	2.209.55
Thai Highways Department	227.10	339.60	396.50	500.80	631.70	2,095.70
1. Construction and Rehabilitation of National Highways Programme						
1.1 Construction and Rehabilitation of 14 National Highways with a total length of 807.5 kms.	57.00	88.00	114.30	177.00	264.30	700.60
2. Construction and Rehabilitation of Provincial Highways Programme						
2.1 Construction and Rehabilitation of 67 Provincial Highways with a total length of 1,560.2 kms.	100.10	181.60	212.20	253.80	297.40	1,045,10
3. Non — Planned Highways Programme						
3.1 Construction of Non-Planned Highways with a total length of 1,000 kms.	70.00	70.00	70.00	70.00	70.00	350.00
Office of Accelerated Rural Development	8.40	8.20	20.80	9.90	24.60	71.90
Road Construction Programme						
1. Construction of Rural Roads with a total length of 817 kms.	8.40	8.20	20.80	9.90	24.60	71.90
Public Works Department	4.80	2.16	8.50	1.76	10.70	27.92
Rural Road Construction Programme						
1. Construction of Rural Roads with a total length of 232.7 kms.	4.80	2.16	8.50	1.76	10.72	27.92

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Hydrographic Department	—	4.55	1.93	—	—	6.48
1. Aids to Navigation Development Programme Construction of Building and Workshop for the centre of Aids to Navigation repairing	—	4.55	1.93	—	—	6.48
State Railways of Thailand	2.70	2.85	2.00	—	—	7.55
1. Survey for construction of Klong Sibkao-Ban Phachi Line	—	0.850	—	—	—	0.850
2. Survey for construction of Bua Yai - Roi Et-Mukdaharn-Nakhon Phanom	2.700	—	—	—	—	2.700
3. Survey for Realignment of Den Chai — Chiang Mai Line	—	2.000	2.000	—	—	4.000
Total Budget	2,770.450	3,285.874	3,287.205	3,057.355	2,861.144	15,262.028

2. Foreign Loans

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Priority I	599.156	925.81	725.45	915.847	399.559	3,565.822
Thai Highways Department	390.70	290.52	130.00	18.00	—	829.22
1. Construction and Rehabilitation of National Highways Programme						
1.1 Construction of 6 National Highways with a total length of 525.0 kms.	213.10	163.70	130.00	18.00	—	524.80
2. Construction and Rehabilitation of Provincial Highways Programme						
2.1 Construction of 5 Provincial Highways with a total length of 469.0 kms.	134.60	82.70	—	—	—	217.30
3. National Highways Survey Programme						
3.1 Survey and design of 4 National Highways with a total length of 462.3 kms.	23.00	24.12	—	—	—	47.12
4. Provincial Highways Survey Programme						
4.1 Provincial Highways survey for construction, a total length of of 700.0 kms.	20.00	20.00	—	—	—	40.00

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Harbours Department	4.65	—	—	—	—	4.65
1. Inland Waterways Development Projects.	3.00	—	—	—	—	3.00
2. Survey and Design of Kantang Port.	1.65	—	—	—	—	1.65
Public Relations Department	—	—	—	208.62	—	208.62
1. Television Service Expansion Programme	—	—	—	208.62	—	208.62
State Railways of Thailand	9.656	228.72	299.60	367.987	98.849	1,104.812
1. Acquisition of 54 Diesel Locomotives Project.	—	349.399	42.112	—	—	291.511
2. Acquisition of 28 Diesel Railcars Project.	3.130	—	—	—	—	3.130
3. Acquisition of 23 Passenger Coaches Project.	2.229	5.279	0.587	—	—	8.095
4. Acquisition of 4 Diesel Railcars of Mae Klong Line.	1.473	—	—	—	—	1.473
5. Acquisition of 100 Diesel locomotives Project.	—	—	192.512	320.09	57.498	570.10
6. Construction of 210 Passenger Coaches Project.	—	35.821	27.527	24.373	27.047	114.768
7. Construction of 712 Freight Coaches Project.	—	15.519	14.021	15.732	9.504	54.776
8. Replacement of Bridge to Hold 15 Ton Axle Load Project.	—	5.000	—	—	—	5.000
9. Rail Replacement and Welding Project.	—	17.702	5.055	1.284	—	24.041
10. Expansion of Marshalling Yard and Station Project.	—	—	7.694	0.853	—	8.547
11. Chachoengsao-Laem Krabang- Sattahip Line Study.	2.200	—	—	—	—	2.200
12. Survey for construction of Klong Sibkao-Ban Phachi Line.	0.624	—	—	—	—	0.624
13. Acquisition of 2 Lifting Crane	—	—	7.692	0.855	—	8.547
Telephone Organization of Thailand	52.55	176.07	246.85	311.24	272.71	1,059.42
1. Metropolitan Telephone Plant Service Expansion Programme (1967-1971)	17.39	18.76	9.61	—	—	45.76
2. Metropolitan Telephone Plant Service Expansion Programme (1972-1976)	35.16	157.31	237.24	311.24	272.71	1,013.66
Port Authorities of Thailand	103.00	115.00	42.00	—	—	260.00
1. East Quay Project.	103.00	115.00	42.00	—	—	260.00
Aeronautical Radio Company	10.60	2.50	—	—	—	13.10
Aeronautical Radio Service Development Programme						
1. Construction of Air Traffic Control Building.	4.00	—	—	—	—	4.00
2. Replacement of Aero Mobile HF/AG.	2.60	1.70	—	—	—	4.30
3. Replacement of old microwave equipment.	4.00	—	—	—	—	4.00
4. Establishment of VHF Remote Control Station.	—	0.80	—	—	—	0.80
Thai International Airways Company	28.00	13.00	7.00	10.00	28.00	86.00
1. Construction of Hangar	28.00	13.00	7.00	10.00	28.00	86.00

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Priority II	24.736	240.587	569.81	608.18	555.33	1,998.643
Highways Department	—	95.70	349.70	423.90	435.90	1,305.20
1. Construction and Rehabilitation of National Highways Programme						
1.1 Construction of 10 National Highways, a total length of 1,016 kms.	—	75.50	264.60	303.60	313.70	957.40
2. Construction and Rehabilitation of Provincial Highways Programme						
2.1 Construction of 13 Provincial Highways, a total length of 667 kms.	—	20.20	85.10	120.30	122.20	347.80
State Railways of Thailand	5.816	2.817	—	—	—	8.633
1. Installation of Signalling and Interlocking Device Project.	2.504	2.505	—	—	—	5.009
2. Installation of Telecommunications System Project.	3.000	—	—	—	—	3.000
3. Installation of Tokenless Block Instrument Project.	0.312	0.312	—	—	—	0.624
Telephone Organization of Thailand	17.17	105.32	215.11	169.28	104.43	611.31
1. Provincial Telephone Plant Service Expansion Programme (1972-1976)	17.17	52.39	91.20	88.38	19.86	269.00
2. Toll Spur Route Expansion Programme (1972-1976)	—	52.93	123.91	80.90	84.57	342.31
Thai Maritime Navigation Company	—	30.00	—	—	—	30.00
1. Acquisition of Cargo Ship Project Acquisition of one 8,000 DWT Cargo Ship.	—	30.00	—	—	—	30.00
Aeronautical Radio Company	1.75	6.75	5.00	15.00	15.00	43.50
1. Aeronautical Radio Service Improvement Programme						
1.1 Replacement of Automatic Switching Centre System.	—	5.00	5.00	5.00	5.00	20.00
1.2 Acquisition of Fully Automatic Air Traffic Control Equipment.	—	—	—	10.00	10.00	20.00
1.3 Acquisition and Installation of Signal Receiver.	—	0.57	—	—	—	0.75
1.4 Acquisition and Installation of Facimiles Communications System.	—	1.00	—	—	—	1.00
1.5 Acquisition of 2 sets of ISB Communications System.	1.75	—	—	—	—	1.75
	2.50	2.90	2.00	—	42.50	49.90
Priority III	—	—	—	—	42.50	42.50
Harbours Department						
1. Coastal Port Development Programme Acquisition of 2 dredgers.	—	—	—	—	42.50	42.50

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Aeronautical Radio Company	2.50	2.90	2.00	—	—	7.40
1. Aeronautical Radio Service Improvement Programme.						
1.1 Replacement of teletyping equipment.	2.50	2.50	2.00	—	—	7.00
1.2 Acquisition of 3 sets of Lincompec equipment.	—	0.40	—	—	—	0.40
Total Foreign Loan	626.392	1,155.297	1,302.260	1,540.827	997.389	5,622.165

3. Foreign Grants

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Priority I	67.50	67.42	57.10	44.59	00.84	237.36
Thai Highways Department	51.30	51.30	51.20	40.00	—	193.90
1. National Highways Construction and Rehabilitation Programme.						
Construct 2 National Highways, a total length of 145.0 kms.	51.30	51.30	51.20	40.00	—	193.90
Office of the Under-Secretary Ministry of Communications.						
1. Transportation and Communication Co-ordination Study Phase II	5.00	10.00	—	—	—	15.00
2. Ship-Repairing Facilities Improvement Survey*	5.00	10.00	—	—	—	15.00
Inland Transportation Department	—	0.54	0.91	0.40	—	0.85
1. Traffic Survey Programme						
1.1 Survey the existing traffic, freight and details of operating cost	—	0.05	0.05	—	—	0.10
1.2 Study commodity flow and operating cost to improve the rate structure and to plan sites of the bus terminals	—	0.41	0.47	0.37	—	1.25
2. Road Transport Efficiency Improvement Programme						
2.1 Establishment of Provincial Transport Training Schools	—	0.08	0.39	0.03	—	0.50
Harbour Department	6.00	—	—	—	—	6.00
1. Seamanship Development Project	0.20	—	—	—	—	0.20
2. Sattahip Port Study	4.20	—	—	—	—	4.20

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
3. Survey and Design of Phuket Port	0.75	—	—	—	—	0.75
4. Narathiwat Port Study	0.85	—	—	—	—	0.85
5. Songkhla Port Study*						
Thai Maritime Navigation Limited	0.84	0.84	0.84	0.84	0.84	4.20
1. Training Course Programme	0.84	0.84	0.84	0.84	0.84	4.20
Civil Aviation Department	4.36	4.74	4.06	3.25	—	16.41
1. Civil Aviation Training Centre Development Programme (UNDP Aids Project)	4.36	4.74	4.06	3.25	—	16.41
1.1 Air Traffic Control Training course						
1.2 Radar and Airbone Navigation Aids Maintenance Training courses						
1.3 Flight Operations Training course						
1.4 Aero-Engine Overhaul Workshop						
Priority II	—	0.42	0.52	0.47	—	1.41
Inland Transportation Department						
1. Road Transport Efficiency Improvement Programme	—	0.42	0.52	0.47	—	1.41
1.1 Safety Research Centre						
Priority III	—	1.49	1.36	1.36	—	4.21
Inland Transportation Department						
1. Road Transport Efficiency Improvement Programme	—	1.49	1.36	1.36	—	4.21
1.1 Provide training courses on management and mechanic						
Total Foreign Grants	67.50	69.33	58.89	46.42	0.84	242.98

* Details of the project expenditure is under consideration of the Department concerned

4. State Enterprises Revenue

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Priority I	358.771	463.646	530.571	452.231	349.221	2,154.44
State Railways of Thailand	35.831	119.026	77.501	77.251	51.751	361.36
1. Acquisition of 54 Diesel Locomotives Project.	—	53.555	4.733	—	—	58.288
2. Acquisition of 28 units of Diesel Railcar Project.	5.544	—	—	—	—	5.544
3. Acquisition of 23 Passenger Coach Project.	0.979	1.156	—	—	—	2.135
4. Acquisition of 4 units of Diesel Railcar of Mae Klong Line.	0.483	—	—	—	—	.483
5. Acquisition of 100 Diesel Locomotives Project.	0.100	—	12.969	16.489	5.00	34.558
6. Construction of 10 units of Diesel Railcar Project.	—	—	2.52	5.04	5.04	12.60
7. Construction of 210 Passenger Coach Project.	—	19.289	14.823	13.124	14.564	61.80
8. Construction of 712 Freight coach project.	—	23.280	21.033	23.598	14.258	82.169
9. Procurement of Concrete Sleeper project.	2.00	1.00	1.00	1.00	0.50	5.50
10. Replacement of Bridge to hold 15 ton Axle load project.	9.533	—	—	—	—	9.533
11. Rail Replacement and Welding project.	1.814	1.030	1.000	1.000	0.970	5.814
12. Expansion of Marshalling Yard and Station Project.	2.00	—	—	—	—	2.00
13. Construction of POL Station Project.	—	1.448	0.259	—	—	1.707
14. Acquisition of two lifting cranes project.	0.10	—	1.674	—	—	1.684
15. Reserve for Miscelleneous.	7.00	7.00	7.00	7.00	7.00	35.00
16. Reserve for Contingencies 5 per cent.	4.961	9.771	10.00	10.00	4.419	39.151
17. Improvement of Mae Klong Line Programme	1.407	1.497	0.490	—	—	3.394
Telephone Organization of Thailand	160.10	175.78	278.23	262.15	201.64	1,077.90
1. Metropolitan telephone Plan Service-Expansion Programme (1967-1971)	6.77	—	—	—	—	6.77
2. Provincial Telephone Plant Service Expansion Programme (1967-1973)	52.72	5.59	—	—	—	58.31
3. Metropolitan Telephone Plant Service Expansion Programme (1970-1973)	36.07	46.32	25.03	—	—	107.42
4. Metropolitan Telephone Plant Service Expansion Programme (1972-1976)	64.54	123.87	253.20	262.15	201.64	905.40
Port Authorities of Thailand	93.00	114.00	117.00	53.00	33.00	410.00
1. East quay project.	93.00	114.00	117.00	53.00	33.00	410.00
Express Transport Organization	39.20	39.20	39.20	39.20	39.20	196.00
1. Bus Service Development project						
1.1 Replace old buses and add new buses to the existing fleet at the rate of 70 units per year.	15.40	15.40	15.40	15.40	15.40	77.00
2. Truck Service Development project.						
2.1 Acquire 10 wheel conventional trucks.	19.00	19.00	19.00	19.00	19.00	95.00
2.2 Acquire 6 wheel conventional trucks.	4.80	4.80	4.80	4.80	4.80	24.00

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Inland Transport Company	6.64	6.64	6.64	6.63	6.63	33.18
1. Acquisition of Bus project.	6.22	6.22	6.22	6.22	6.22	31.10
2. Acquisition of Accessories project.	0.42	0.42	0.42	0.41	0.41	2.08
Thai International Company	42.00	9.00	12.00	14.00	17.00	76.00
1. Flight Training Project.	6.00	—	—	—	—	6.00
2. Construction of Workshop Project.	8.00	—	—	—	—	8.00
3. Personnel Training Project.	10.00	9.00	12.00	14.00	17.00	62.00
Priority II	119.554	159.73	199.076	144.636	44.741	667.737
State Railways of Thailand	19.114	16.34	10.406	8.746	8.261	62.867
1. Installation of Signalling and Interlocking Devices Project.	1.000	0.960	1.000	1.000	0.881	4.841
2. Installation of Telecommunications System Project.	0.283	1.347	0.321	0.193	0.165	2.309
3. Installation of Tokenless Block Instrument Project.	0.463	0.944	0.203	0.203	—	1.813
4. Replacement of 110 V. Current Project.	1.000	0.994	1.022	1.022	1.022	5.060
5. Acquisition of Roadbed and bridge Maintenance Tool project.	2.093	2.074	3.151	3.077	3.080	13.475
6. Extension of Siding Project.	3.030	3.094	3.062	3.062	3.062	15.310
7. Extension and Improvement of Maintenance Workshop.	3.880	0.037	0.560	0.189	0.051	4.717
8. Improvement of Makkhason Workshop.	6.235	4.000	1.000	—	—	11.235
9. Acquisition of Mechanical Tool for Regional Workshop Project.	1.120	1.390	0.087	—	—	2.597
10. Procurement of Testing Equipment for Civil Engineering Laboratory Project.	—	1.50	—	—	—	1.50
11. Acquisition and Installation of Self-Generated Electricity System Project.	0.01	—	—	—	—	0.01
Telephone Organization of Thailand	100.44	143.39	188.67	135.89	36.48	604.87
1. Provincial Telephone Plant Service Expansion Programme (1972-1976)	21.14	79.85	79.99	72.84	15.54	269.36
2. Toll Spur Route Expansion Programme (1972-1976)	79.30	63.54	108.68	63.05	20.94	335.51
Priority III	33.434	62.097	31.283	24.907	24.787	176.508
State Railways of Thailand	14.634	21.697	2.683	2.307	2.187	43.508
1. Construction of Residential Building Project	9.073	11.697	2.050	1.675	0.966	25.461
2. Construction of Administration Building Project.	5.561	10.00	0.633	0.632	1.221	18.047
Express Transport Organization	11.60	11.60	11.60	11.60	11.60	58.00
1. Bus Service Development Project						
1.1 Acquire land and construct building and to purchase related equipment to be used in the operation of bus service.	2.00	2.00	2.00	2.00	2.00	10.00

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
2. Truck Service Development Project.						
2.1 Acquire 10 wheel container truck	6.60	6.60	6.60	6.60	6.60	33.00
2.2 Acquire land and construction go-down and parking lot to handle 1 million tons of cargo each year.	3.00	3.00	3.00	3.00	3.00	15.00
Thai Airways Company	16.00	24.00	18.00	17.00	—	75.00
1. Acquisition of Aeroplane project						
1.1 Purchase two 42 seater prop-jet aeroplanes inclusive of accessories.	16.00	24.00	18.00	17.00	—	75.00
Priority IV	13.00	13.00	13.00	13.00	13.00	65.00
Inland Transport Company						
1. Acquisition of Air-Conditioned Bus Project.	13.00	13.00	13.00	13.00	13.00	65.00
Total	524.759	698.473	773.93	634.774	431.749	3,063,685

APPENDIX CHAPTER 12

Electric Energy Development Expenditures

1. Government Budget

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
Electricity Generating Authority of Thailand							
On - going Projects :							
1. Sirikit Dam Stage 1	40.40	50.93	10.10	—	—	101.43	
2. South Bangkok Thermal Plant Unit 2	20.50	—	—	—	—	20.50	
3. Surat Thani Thermal Plant	19.82	—	—	—	—	19.82	
4. Phunphin - Thung Song Transmission Line	8.33	—	—	—	—	8.33	
5. Nam Phrom Dam Stage 1	45.20	5.00	—	—	—	50.20	
6. South Bangkok Thermal Plant Unit 3	50.00	110.00	—	—	—	160.00	
7. Transmission Line and Substation Expansion	29.20	84.09	11.71	—	—	125.00	
New Projects :							
1. Kang Krachan	6.56	13.44	—	—	—	20.00	
2. South Bangkok Thermal Plant Unit 4	—	50.00	50.00	30.00	—	130.00	
3. Transmission Lines to Receive Power from Nam Ngum	—	2.60	33.00	14.00	—	50.00	
4. Quay Yai Dam Stage 1	—	90.00	90.00	130.00	105.00	415.00	
5. Pattani	—	51.00	53.90	61.30	33.80	200.00	
6. Mae Moh Unit 1	—	—	35.00	30.00	10.00	75.00	
Future Projects :							
1. Central - South Tie Lines	—	—	—	—	10.00	10.00	
2. Klong Kai Dam	—	—	—	—	6.00	6.00	
3. Nuclear Power Plant	—	—	—	50.00	80.00	130.00	
4. Mae Moh Unit 2	—	—	—	—	25.00	25.00	
Provincial Electricity Authority							
On - Going Projects :							
1. Lam Dom Noi Distribution System	17.00	9.27	6.60	—	—	32.87	
2. Installation of Diesel Generating Units Stage 2	5.40	—	—	—	—	5.40	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
3. Distribution System in the Lower Southern Provinces	15.20	1.76	—	—	—	16.96	
New Projects :							
1. **Yanhee Third Stage Distribution System**	5.29	7.94	9.26	0.96	—	23.45	
1.1 Changwat Prachin Buri - Nakhon Nayok	3.00	5.30	5.20	—	—	13.50	
1.2 Changwat Pathum Thani	1.60	0.52	0.42	—	—	2.54	
1.3 Changwat Phrae	0.69	0.64	2.73	0.77	—	5.83	
1.4 Changwat Ranong	—	0.48	0.91	0.91	—	1.58	
2. Improvement of Generation and Distribution System in the Areas where Electricity is Self - Generated.	2.70	13.39	19.35	14.14	9.12	58.70	
2.1 Changwat Chiang Rai	1.60	8.00	8.00	8.00	8.29	33.89	
2.2 Changwat Nan	0.55	1.73	2.89	0.73	—	5.90	
2.3 Changwat Phetchabun	0.55	1.98	2.13	0.73		6.39	
2.4 Changwat Chanthaburi - Trat	—	1.68	3.25	0.67	—	5.60	
2.5 Changwat Prachuap Khiri Khan	—	—	0.89	1.71	0.36	2.96	
2.6 Changwat Chumphon	—	—	1.19	2.30	0.47	3.96	
3. Installation of Diesel Generating Unit Stage 3	—	5.40	5.40	5.40	5.40	21.60	
4. Accelerated Rural Electrification	—	8.91	8.91	8.91	8.91	35.64	
Future Projects :							
1. Distribution System to Link Areas where Electricity is Generated by Small Diesel Plant	—	—	—	—	—	14.90	
2. Expansion of Existing Distribution System	—	—	—	—	—	119.70	
National Energy Authority							
On - Going Projects :							
1. Investigation and Collection of Hydrological Data	6.26	6.00	6.00	6.00	6.00	30.26	
2. Mekong Basin Development	12.10	14.50	16.00	16.50	18.00	77.10	
3. Pa Mong Third Stage Investigation	7.48	10.50	—	—	—	17.98	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
4. Lam Dom Noi Dam	12.13	—	—	—	—	12.13	
5. Mae Hong Son	1.05	—	—	—	—	1.05	
New Project :							
1. Investigation of Transportation of Oil Through Pipe Line	2.00	—	—	—	—	2.00	
Future Project :							
1. Pumping Water from Mekong	—	—	—	—	—	73.00	
Office of Atomic Energy for Peace							
1. Research on the Uses of Atomic Energy	6.00	6.00	6.00	6.00	6.00	30.00	

2. Foreign Loans

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
Electricity Generating Authority of Thailand							
On - Going Projects							
1. Sirikit Dam Stage 1	246.45	101.04	25.51	—	—	373.00	
2. South Bangkok Thermal Plant Unit 2	—	—	—	—	—	—	
3. Surat Thani Thermal Plant	21.46	—	—	—	—	21.46	
4. Phunphin - Thung Song Transmission Line	14.93	—	—	—	—	14.93	
5. Nam Phrom Dam Stage 1	54.52	18.87	—	—	—	73.39	
6. South Bangkok Thermal Plant Unit 3	274.00	83.00	50.00	—	—	407.00	
7. Transmission Line and Substation Expansion	100.16	164.23	112.68	16.78	—	393.85	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
New Projects :							
1. Kang Krachan	30.70	9.57	4.37	—	—	44.64	
2. South Bangkok Thermal Plant Unit 4	—	192.00	290.00	61.00	3.00	546.00	
3. Sirikit Stage 2	—	37.00	26.00	—	—	63.00	
4. Transmission Lines to Receive Power from Nam Ngum	—	17.10	42.40	10.50	—	70.00	
5. Quay Yai Dam Stage 1	—	40.42	171.00	252.00	207.00	670.42	
6. Pattani	—	—	25.00	58.00	32.00	115.00	
7. Mae Moh Unit 1	—	—	90.00	124.00	27.50	241.50	
8. Sirinthorn Stage 2	—	—	—	3.60	9.00	12.60	
9. Miscellaneous System Expansion	—	—	—	78.30	63.00	141.30	
Future Projects :							
1. North - Northeast Tie Lines	—	—	—	8.00	13.00	21.00	
2. Central - South Tie Lines	—	—	—	—	28.80	28.80	
2. Klong Klai Dam	—	—	—	—	10.00	10.00	
4. Nuclear Power Plant	—	—	—	110.00	250.00	360.00	
5. Mae Moh Unit 2	—	—	—	—	93.50	93.50	
Provincial Electricity Authority							
On - Going Projects :							
1. Lam Dom Noi Distribution System	12.00	9.28	3.99	—	—	27.27	
2. Distribution System in The Lower Southern Provinces	—	—	—	—	—	—	
New Projects :							
1. Yanhee Third Stage Distribution System	—	11.50	8.58	—	—	20.08	
1.1 Changwat Prachin Buri - Nakhon Nayok	—	—	—	—	—	—	
1.2 Changwat Pathum Thani	—	—	—	—	—	—	
1.3 Changwat Phrae	—	8.50	6.58	—	—	15.08	
1.4 Changwat Ranong	—	3.00	2.00	—	—	5.00	
2. Improvement of Generation and Distribution System in the Areas Where Electrity is Self - Generated	—	53.99	65.79	33.26	0.94	153.98	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
2.1 Changwat Chiang Rai	—	17.00	17.00	17.00	0.94	51.94	
2.2 Changwat Nan	—	10.00	7.01	—	—	17.01	
2.3 Changwat Phetchabun	—	12.00	7.40	—	—	19.40	
2.4 Changwat Chanthaburi - Trat	—	14.99	10.00	—	—	24.99	
2.5 Changwat Prachuap Khiri Khan	—	—	9.92	6.62	—	16.54	
2.6 Changwat Chumphon	—	—	14.46	9.64	—	24.10	
3. Installation of Diesel Generating Units Stage 3	—	—	—	—	—	—	
4. Accelerated Rural Electrification	—	62.94	62.94	62.94	62.94	251.76	
Future Project :							
1. Distribution System to Link Areas where Electricity is Generated by Small Diesel Plant	—	—	—	—	—	16.40	
2. Expansion of Existing Distribution System	—	—	—	—	—	—	
Metropolitan Electricity Authority							
1. Improvement and Expansion of Distribution System	100.63	218.31	134.27	173.68	225.02	851.91	

3. Foreign Grants

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
Provincial Electricity Authority							
New Project							
1. Accelerated Rural Electrification	—	26.97	26.97	26.98	26.98	107.90	

4. State Enterprises Revenue

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	Remarks
Electricity Generating Authority of Thailand							
On - Going Projects :							
1. Sirikit Dam Stage 1	71.15	104.80	26.17	—	—	202.12	
2. South Bangkok Thermal Plant Unit 2	15.32	—	—	—	—	15.32	
3. Surat Thani Phermal Plant	8.38	—	—	—	—	8.38	
4. Phunphin - Thun Song Transmission Line	1.21	1.21	—	—	—	2.42	
5. Nam Phom Dam Stage 1	20.46	12.97	—	—	—	33.43	
6. South Bangkok Thermal Plant Unit 3	79.10	97.00	40.15	—	—	216.25	
7. Transmission line and Substation Expansion	47.03	46.56	60.06	—	—	153.65	
New Projects :							
1. Kang Krachan	6.55	3.89	—	—	—	10.44	
2. South Bangkok Thermal Plant Unit 4	7.30	45.00	70.00	84.00	17.70	224.00	
3. Sirikit Stage 2	—	14.00	23.00	—	—	37.00	
4. Transmission Lines to Receive Power from Nam Ngum	—	11.70	19.50	10.80	—	42.00	
5. Quay Yai Dam Stage 1	12.85	10.00	84.30	125.20	138.00	370.35	
6. Pattani	3.50	3.00	6.00	9.80	12.70	35.00	
7. Mae Moh Unit 1	3.00	10.00	10.00	35.00	36.00	94.00	
8. Sirinthorn Stage 2	—	—	—	2.40	5.00	7.40	
9. Miscellaneous System Expansion	24.00	59.00	38.00	44.70	60.00	225.70	
10. Miscellaneous Plant Addition	72.00	65.00	74.00	83.00	91.00	385.00	
Future Projects							
1. North - Northeast Tie Lines	—	—	—	12.00	17.60	29.60	
2. Central - South Tie Lines	—	—	—	7.50	18.10	25.60	
3. Klong Klai Dam	—	—	—	5.00	25.00	30.00	
4. Nuclear Power Plant	—	—	—	25.00	161.00	186.00	
5. Mae Moh Unit 2	—	—	—	—	20.50	20.50	

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total	(Remarks)
Provincial Electricity Authority							
On-Going Projects :							
1. Lam Dom Noi Distribution System	2.00	1.50	0.71	—	—	4.21	
2. Distribution System in the Lower Southern Provinces	5.90	3.44	—	—	—	9.34	
New Projects							
1. Yanhee Third Stage Distribution System	11.04	19.45	18.20	9.44	—	58.13	
1.1 Changwat Prachin Buri - Nakhon Nayok	5.65	11.35	7.74	—	—	24.65	
1.2 Changwat Pathum Thani	4.68	5.02	2.89	—	—	12.59	
1.3 Changwat Phrae	0.80	1.36	5.08	6.51	—	13.75	
1.4 Changwat Ranong	—	1.72	2.49	2.93	—	7.14	
2. Improvement of Generation and Distribution System in the Areas where Electricity is Self-Generated	2.09	9.21	27.53	39.14	18.94	96.93	
2.1 Changwat Chiang Rai	0.85	2.60	2.60	2.60	2.50	11.15	
2.2 Changwat Nan	0.62	1.27	4.60	5.58	—	11.53	
2.3 Changwat Phetchabun	0.62	1.02	2.82	5.08	—	9.54	
2.4 Changwat Chanthaburi - Trat	—	4.32	10.05	12.89	—	27.26	
2.5 Changwat Prachuap Khiri Khan	—	—	3.51	5.79	7.18	16.48	
2.6 Changwat Chumphon	—	—	4.51	7.20	9.26	20.97	
Future Projects							
1. Distribution System to Link Areas where Electricity is Generated by Small Diesel Plant	—	—	—	—	—	11.23	
2. Expansion of Existing Distribution System	—	—	—	—	—	90.30	
Metropolitan Electricity Authority							
1. Improvement and Expansion of Distribution System	126.35	185.99	159.26	180.58	218.96	871.14	

APPENDIX CHAPTER 13

Social Welfare Development Expenditures

1. Government Budget

(million baht)

Government Agency/Project	1972	1973	1974	1975	1976	Total
Labour Department	13.60	27.00	31.90	36.20	28.90	137.60
1. National Institute for Skill Department	7.50	19.50	23.50	27.00	19.00	97.50
a. Institute for Skill Development in Bangkok Metropolitan	(7.50)	(9.50)	(11.50)	(13.00)	(13.00)	(55.50)
b. Regional Institute for Skill Development	—	(10.50)	(12.00)	(14.00)	(6.00)	(42.00)
2. Occupational Counselling	1.30	1.80	2.20	2.60	3.00	10.90
3. Labour Projection and Labour Relation	1.20	1.60	1.90	2.10	2.20	9.00
4. Labour Research and Statistics	3.60	4.10	4.30	4.50	4.70	21.20
Community Development Department	101.50	108.50	115.50	122.50	129.50	577.50
1. Area Coverage Project Programme	57.00	59.00	61.00	63.00	65.00	305.00
2. Occupational Development Group Programme	12.00	13.00	14.00	15.00	16.00	70.00
3. Self-Help Public Facilities Improvement Programme	7.00	7.50	8.00	8.50	9.00	40.00
4. Community Development through Women and Youth Programme	7.00	8.00	9.00	10.00	11.00	45.00
5. Local Leader Development programme	2.50	3.00	3.50	4.00	4.50	17.50
6. Community Development Personnel Training rogramme	1.50	1.50	1.50	1.50	1.50	7.50
7. Regional Community Development Technical Assistance Centre Programme	9.00	11.00	13.00	15.00	17.00	65.00
8. Community Education Programme	2.00	2.00	2.00	2.00	2.00	10.00
9. Research and Evaluation Programme	1.50	1.50	1.50	1.50	1.50	7.50
10. Rural Development Volunteers Programme	2.00	2.00	2.00	2.00	2.00	10.00
Land Department	38.50	39.50	40.60	27.00	28.50	174.10
1. Allocation of Small Plots of Land	5.00	5.50	6.00	6.50	7.00	30.00
2. Allocation of Large Plots	5.50	6.00	6.50	7.00	7.50	32.50
3. Accelerated Land Allotment in Reserved Area	16.00	15.00	15.00	—	—	46.00
4. Aerial Photo Mapping for Land Titles	10.00	10.00	10.00	10.00	10.00	50.00
5. Accelerated Lane Deeds	2.00	2.50	2.60	3.00	3.50	13.60
6. Research and Land Technology	—	0.50	0.50	0.50	0.50	2.00
Public Welfare Department	150.40	159.30	165.50	173.70	180.40	829.30
1. General Land Settlements	36.00	38.00	40.00	42.00	44.00	200.00
2. Settlements in the Southern Border Provinces	26.00	27.00	28.00	29.00	30.00	140.00
3. Settlements for families in the Flooded Dam Reservoirs, Special Land Settlements	13.90	13.90	10.90	10.40	10.40	59.50
3.1 Dairy Cattle Settlement at Saraburi	(3.00)	(2.00)	(2.00)	—	—	(7.00)

(million baht)

Government Agency/Project	1972	1973	1974	1975	1976	Total
3.2 Lam Nam Nan Settlement, Uttaradit	(1.00)	(1.50)	—	—	—	(2.50)
3.3 Toongsarn Settlement, Phitsanulok	(1.00)	(1.00)	(1.00)	(1.00)	1.00	(5.00)
3.4 Keiwlom Settlement	(1.00)	(1.00)	(1.00)	—	—	(3.00)
3.5 Lam Nam Oon—Settlement, Sakon Nakhon	(1.80)	(1.80)	(1.00)	—	—	(4.60)
3.6 Lam Dom Noi Settlement, Ubon Ratchathani	(2.00)	(2.00)	—	—	—	(4.00)
3.7 Lam Dom Yai Settlement, Ubon Ratchathani	(2.60)	(2.60)	(2.60)	(3.20)	(3.20)	(14.20)
3.8 Bangrakum Settlement, Phitsanulok	(1.50)	(2.00)	(2.00)	(2.30)	(2.30)	(10.10)
3.9 New Settlement Project	—	—	1.30	(3.90)	(3.90)	(9.10)
4. Hilltribe Land Settlement	3.00	3.00	3.00	3.00	3.00	15.00
5. Hilltribe Land Development Centres	13.00	15.00	17.00	19.00	21.00	85.00
6. Hilltribe Research Centres	0.70	0.70	0.70	0.70	0.70	3.50
7. Welfare of Children and Youth	26.00	28.00	30.00	32.00	32.00	148.00
8. Welfare for Destitute Persons	30.50	32.00	34.00	35.50	37.00	169.00
9. Community Service Centre	1.00	1.20	1.40	1.60	1.80	7.00
10. Preparation for Social Security work	0.30	0.50	0.50	0.50	0.50	2.30
Religious Affairs Department	51.90	56.90	61.90	66.90	71.90	309.50
1. Administration Works for Sangka Supreme and Executive Council	5.90	5.90	5.90	5.90	5.90	29.50
2. Promotion of Buddhism	40.00	45.00	50.00	55.00	60.00	250.00
3. Royal Charity Support	5.00	5.00	5.00	5.00	5.00	25.00
4. Other Religious Support	1.00	1.00	1.00	1.00	1.00	5.00
Fine Arts Department	30.00	33.00	36.00	39.00	42.00	180.00
1. Research and Publish Thai History Textbook	1.00	1.00	1.00	1.00	1.00	5.00
2. National Library and National Archives	6.00	7.00	8.00	9.00	10.00	40.00
3. National Museums and Archaeology	12.50	14.00	15.50	17.00	18.50	77.50
4. Promotion of Thai Architecture and Art	5.00	5.50	6.00	6.50	7.00	30.00
5. Extension of Thai Music and Drama	5.50	5.00	5.50	5.50	5.50	27.50
Accelerated Rural Development (Social Sector)	25.40	26.60	28.30	30.00	31.70	142.00
1. Development of Youth in Rural Area	3.00	3.00	3.50	4.00	4.50	18.00
2. Village Development	21.40	22.40	23.40	24.40	25.40	117.00
3. Training Service	1.00	1.20	1.40	1.60	1.80	7.00

APPENDIX CHAPTER 14

Urban and Local Government Development Expenditures

1. Government Budget

(million baht)

Project and Programme	1972	1973	1974	1975	1976	Total
Metropolitan Development	361.0	491.0	493.0	596.0	601.0	2,542.0
1. Metropolitan Water Supply Project	230.0	250.0	250.0	250.0	250.0	1,230.0
2. Sewerage, Drainage and Flood Protection Systems for Bangkok - Thon Buri	30.0	50.0	50.0	100.0	100.0	330.0
3. Road Construction and Traffic Planning Project	50.0	100.0	100.0	150.0	150.0	550.0
4. Bridge Construction Projects						
(1) Tha - Chang Bridge Project	30.0	30.0	30.0	20.0	20.0	130.0
(2) Sathorn Bridge Project	—	30.0	30.0	30.0	20.0	110.0
5. Housing Project	20.0	30.0	32.0	45.0	60.0	187.0
6. City Planning Project	1.0	1.0	1.0	1.0	1.0	5.0
Development Outside the Metropolitan Area	215.0	215.0	285.0	285.0	285.0	1,285.0
1. Ponds, Tanks and Shallow Wells Water Supply Project	20.0	20.0	20.0	20.0	20.0	100.0
2. Drilled Wells Water Supply Project	30.0	30.0	35.0	35.0	35.0	165.0
3. Provincial Water Supply Project	150.0	150.0	200.0	200.0	200.0	900.0
4. Town Planning Project	15.0	15.0	30.0	30.0	30·0	120.0
Local Government Subsidy	563.0	515.0	530.0	551.0	571.0	2,730.0
1. Municipalities and Sanitary Districts[1/]	320.0	336.0	353.0	370.0	388.0	1,767.0
1.1 Education Programme	138.0	145.0	152.0	160.0	168.0	763.0
1.2 Road Construction and Drainage Programme[2/]	72.0	75.0	80.0	82.00	83.0	392.0
1.3 Sanitation Programme	4.0	4.0	4.0	4.0	5.0	21.0
1.4 Public Health Programme	5.0	6.0	6.0	6.0	7.0	30.0
1.5 Water Resources Programme	1.0	1.0	1.0	1.0	2.0	6.0
1.6 Other Programmes	100.0	105.0	110.0	117.0	123.0	555.0
2. Provincial and Tambon Administrative Authorities	243.0	179.0	177.0	181.0	183.0	963.0
2.1 General Subsidy	43.0	45.0	47.0	50.0	53.0	238.0
2.2 Promotion of Rural Democratic Development Project	10.0	11.0	12.0	13.0	14.0	60.0
2.3 Special Area Development Project	3.0	3.0	3.0	3.0	3.0	15.0
2.4 Destitute Area and Border Area Development Project	5.0	5.0	5.0	5.0	5.0	25.0

(million baht)

Project and Programme	1972	1973	1974	1975	1976	Total
2.5 Regional Development Project	85.0	85.0	85.0	85.0	85.0	425.0
2.6 A.R.D. Rural Development Centre in the Northeast	10.0	10.0	10.0	10.10	10.0	50.0
2.7 Counterpart Funds	87.0	20.0	15.0	15.0	13.0	150.0
Total Budget and Local Government Expenditure	1,139.0	1,221.0	1,308.0	1,432.0	1,457.0	6,557.0

Foot Note : 1/ Excluding Vehicle Tax subsidy.

2/ Excluding the projects of sewerage, drainage and flood protection systems and road construction for Bangkok - Thon Buri.

2. Foreign Loans

(million baht)

Project and Programme	1972	1973	1974	1975	1976	Total
Metropolitan Water Supply Project	50.0	100.0	200.0	250.0	350.0	950.0
Sewerage, Drainage and Flood Protection Systems for Bangkok - Thon Buri	—	20.0	20.0	20.0	20.0	80.0
Road Construction for Bangkok - Thon Buri	—	50.0	50.0	50.0	50.0	200.0
Metropolitan Traffic Planning Project	8.0	8.0	7.0	—	—	23.0
Bridge Construction Project	43.0	15.5	—	—	—	58.5
(1) Tha - Chang Bridge Project	—	20.0	50.0	50.0	50.0	170.0
(2) Sathorn Bridge Project	—	20.0	20.0	20.0	20.0	80.0
National Rural Community Water Supply Programme	20.0	20.0	20.0	20.0	20.0	100.0
Provincial Water Supply Project	—	160.0	160.0	160.0	160.0	640.0
Housing Project						
Total Foreign Loans	121.0	413.5	527.0	570.0	670.0	2,301.5

3. Foreign Grants *

(million baht)

Project and Programme	1972	1973	1974	1975	1976	Total
1. City Planning Project	6.0	6.0	3.0	—	—	15.0
2. National Rural Community Water Supply Programme	20.0	20.0	20.0	20.0	20.0	100.0
3. Sewerage and Drainage for Larger Municipalities	20.0	20.0	20.0	20.0	20.0	100.0
4. Waste Disposal for Municipalities	20.0	20.0	20.0	20.0	20·0	100.0
Total Foreign Grants	66.0	66.0	63.0	60.0	60.0	315.0

Foot Note : * Excluding foreign grants through A.R.D., to Department of Local Administration and training programmes.

4. Local Government and State Enterprise Revenues

(million baht)

Project and Programme	1972	1973	1974	1975	1976	Total
1. Total Local Government Revenues	973.0	1,060.0	1,154.0	1,257.0	1,369.0	5,813.0
2. State Enterprise Revenue						
— Metropolitan Waterworks Authority *	—	—	50.0	70.0	100.0*	200.0
Total	973.0	1,060.0	1,204.0	1,327.0	1,469.0	6,033.0

Footnote : *Expected increase in water rate collection.

APPENDIX CHAPTER 15

TABLE 15.4

Public Health Development Expenditures

1. Government Budget

(million baht)

Government Agency/Project	1972	1973	1974	1975	1976	Total
Ministry of Public Health	850.61	1,084.97	1,170.34	1,242.08	1,318.92	5,666.92
Office of the Under Secretary of State	93.12	102.33	100.41	97.49	98.50	491.85
1. Malaria	84.00	90.00	86.00	80.00	77.00	417.00
2. Tropical Dermatology	2.19	3.00	3.20	3.50	3.80	15.69
3. Filariasis	1.16	1.91	1.96	1.66	1.76	8.45
4. Food Control*	5.77	7.42	9.25	12.33	15.94	50.71
Department of Medical Services	400.59	490.50	529.00	563.07	593.17	2,576.33
1. Provincial Hospitals	261.61	318.00	358.00	400.00	440.00	1,777.61
2. Nursing College	29.11	40.00	29.00	31.00	32.00	161.11
3. Women's Hospital	28.78	37.00	39.00	28.00	20.00	152.78
4. Psychiatric Hospital	67.94	74.00	77.00	82.00	87.00	387.94
5. Addicts	6.95	7.50	8.00	8.07	8.34	38.86
6. Suburban Hospital*	2.00	13.00	17.00	13.00	4.83	49.83
7. New Hospital	4.20	1.00	1.00	1.00	1.00	8.20
Department of Public Health	344.44	477.06	524.08	562.79	606.50	2,514.87
1. Rural Health Service	162.26	235.29	264.39	286.12	306.23	1,254.29
2. Family Planning	10.00	12.50	15.00	18.00	20.00	74.50
3. Maternal and Child Care	29.49	32.00	35.00	32.00	34.00	162.49
4. Training of Health Personnel	8.46	11.00	12.00	13.00	17.00	61.46
5. Food Promotion	3.24	4.28	4.99	5.76	4.46	22.73
6. Rural Water Supply	25.40	35.00	40.00	45.00	50.00	195.40
7. Community Health Development	22.28	25.40	27.90	29.00	31.00	135.58
8. Communicable Diseases	15.10	24.88	26.91	27.32	30.21	124.42
9. Health Education*	2.48	6.90	4.69	5.46	6.37	25.90
10. Tuberculosis Control	20.03	23.10	24.10	27.00	28.20	122.43
11. V.D. Control	15.43	20.00	24.00	27.00	30.00	116.43
12. Leprosy Control	23.02	30.75	31.65	32.55	33.45	151.42
13. Epidemiological*	5.37	6.17	6.78	7.37	7.80	33.49
14. Food Sanitation*	0.19	2.69	1.31	1.38	1.42	6.99

* Reserved Projects in the amount of 166.92 million baht.

(million baht)

Government Agency/Project	1972	1973	1974	1975	1976	Total
15. Water Pollution	1.03	2.10	2.20	2.30	2.40	10.03
16. Occupational Health	0.66	5.00	3.16	3.53	3.96	16.31
Department of Medical Sciences	12.46	15.08	16.85	18.73	20.75	83.87
1. Medical Analysis and Research	7.49	9.00	10.00	11.00	12.00	49.49
2. Radiation	1.67	1.08	0.85	0.73	0.75	5.08
3. Medical Laboratory	3.30	5.00	6.00	7.00	8.00	29.30

3. Foreign Grants

(million baht)

Government Agency/Project	1972	1973	1974	1975	1976	Total
1. Strengthening of Health Services Epidemiology	0.021	0.021	0.021	0.021	0.021	0.105
2. National Health Planning	0.083	0.104	0.062	0.021	—	0.270
3. Malaria Eradication	22.027	20.883	20.322	19.760	18.408	101.400
4. National Institute of Dermatology of Thailand	0.312	0.312	0.208	0.208	0.208	1.248
5. Virus Disease Control	0.416	0.416	0.312	0.208	0.208	1.65
6. Regional and Provincial Public Health Lab.	0.686	0.489	0.416	0.312	0.312	2.215
7. Improvement of Drug Control Lab.	0.062	1.352	0.312	—	—	1.726
8. Food and Beverage Analysis	0.744	0.160	0.160	0.160	0.160	1,384
9. Medical Plant Research	—	—	—	—	—	—
10. Radiation Protection Service	0.416	—	—	—	—	0.416
11. Family Planning	28.964	26.068	23.461	4.059	19.003	101.555
12. Strengthening of National Health Education	0.770	0.730	0.730	0.730	0.730	3.690
13. Tuberculosis Control	.653	1.075	0.653	1.075	0.653	4.109
14. V.D. Control	32.925	42.352	44.773	61.634	71.226	252.910
15. Haemorrhagic Fever	0.218	0.042	0.218	0.042	0.042	0.562
16. Strengthening of Rural Health Service	21.317	3.120	3.120	3.120	3.120	33.797
17. Protein Food Development	1.092	1.113	1.113	—	—	3.318

(million baht)

Government Agency/Project	1972	1973	1974	1975	1976	Total
18. Applied Nutrition	0.483	0.499	0.505	0.520	0.520	2.527
19. Water Pollution Control	2.060	2.100	2.200	2.300	2.400	11.060
20. Occupational Health	0.790	0.021	0.021	—	—	0.832
21. National Community Water Supply	0.125	0.125	0.125	0.125	0.125	0.625
22. Comprehensive Rural Health	5.200	5.200	5.200	5.200	5.200	26.000
Total	119.364	106.182	103.932	99.495	122.336	551.309

*** Potential Projects**

1. The National Institute of Food and Nutrition
2. Community Health Development
3. Improvement of Provincial Hospital
4. Dental Health
5. Clinical Nutrition Research
6. Chest and Heart Medical Centre
7. Improvement of Tanyarak Hospital
8. Suburban Hospital
9. Community Mental Health
10. Trachoma Control
11. School of Health Workers
12. School of Dental Nursing
13. School of Midwifery
14. Nursing Education and Services
15. Radiation Improvement (in medical units)
16. Improvement of Microbiology, Pathology and Biochemistry

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* Financial Details are not available as these projects have not yet been finalised.

APPENDIX CHAPTER 16

Education Development Expenditures

1. Government Budget

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Ministry of Interior	2,676.41	2,849.97	3,086.41	3,274.96	3,394.70	15,282.45
Department of Local Administration	2,676.41	2,849.97	3,086.41	3,274.96	3,394.70	15,282.45
Continuing Projects						
1. Lower Primary Education	2,235.36	2,309.40	2,481.84	2,606.10	2,662.32	12,295.02
2. Upper Primary Education	436.05	477.56	535.48	590.13	643.84	2,683.06
3. Rectifying Teachers Shortage in Remote Areas	2.00	7.00	6.00	6.00	6.00	27.00
4. Construction of Housing for Teachers in Remote Areas	—	24.00	32.00	4.00	48.00	144.00
New projects						
1. Distribution of Textbooks to poor students	3.00	25.00	25.00	25.00	25.00	103.00
2. Improvement of Schools as Communty Institution	—	1.30	1.57	2.09	2.69	7.65
3. Improvement of Teaching and Study Materials	—	5.71	4.52	5.64	6.85	22.72
Ministry of Education	1,768.68	2,013.04	2,222.31	2,393.85	2,533.83	10,931.71
Office of the Under - Secretary of State (Ministry of Education)	30.55	29.07	28.82	29.75	34.56	152.75
Continuing Projects						
1. Expansion of Radio Service for Education	3.15	5.43	5.68	5.98	9.76	30.00
2. Coordination programme with International Organizations	22.52	13.18	12.48	12.60	12.66	73.44
3. Regional Education Development	1.81	5.67	6.10	6.47	6.77	26.82
4. Education Development for Rural Areas (Region II)	1.39	2.11	2.18	2.24	2.78	10.70
5. Educational Planning	1.68	1.71	1.81	1.86	1.94	9.00
New Project						
1. Service and Central Coordination Guidance Units	—	0.97	0.57	0.60	0.65	2.79
Department of Elementary and Adult Education	276.66	299.19	330.01	371.04	413.22	1,690.12
1. Kindergarten	35.27	41.50	49.75	61.15	62.08	249.75
2. Primary Education	106.69	164.16	165.32	167.04	170.66	827.87
3. Educational Welfare	22.65	27.46	29.32	32.65	38.99	151.07
4. Adult Education	28.89	32.04	38.24	47.78	61.05	208.00
5. Orientation and Training	26.25	30.23	36.86	48.85	55.98	198.17
6. Supervision of Standard of Education Research and Promotion of Primary Education	2.91	3.80	10.52	13.57	24.46	55.26

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Department of Secondary Education	714.55	860.29	965.33	1,088.76	1,187.99	4,816.92
Continuing Projects						
1. Public School Development Project	528.16	633.74	723.54	818.75	890.48	3,594.67
2. Comprehensive School	34.90	—	—	—	—	34.90
3. Pre - university School (Phyathai)	11.04	11.10	12.91	15.10	16.45	66.60
4. Educational Orientation and Teacher Training	5.08	10.14	12.15	14.27	19.68	61.32
5. Evaluation and Educational Promotion Fund	8.16	8.88	9.56	10.32	11.26	48.17
6. Administration and Supervision of Private Schools	127.21	127.52	128.19	128.97	129.61	641.50
New Projects						
1. Establishment and Diversification of Schools at Amphoe Level	—	37.91	47.98	60.08	79.03	225.00
2. Improvement of Rural Schools	—	18.00	18.00	18.00	18.08	72.08
3. Improvement of Provincal Schools	—	13.00	13.00	13.00	13.13	52.13
4. Establishment of Teacher Training Centre for Private Schools	—	—	—	10.27	10.28	20.55
Department of Vocational Education	386.59	407.40	455.98	499.01	553.95	2,302.93
Continuing Projects						
1. Agricultural Schools	44.46	58.42	68.99	79.37	94.46	345.70
2. Trade Schools	128.45	138.97	151.08	158.46	162.40	739.36
3. Commercial and Industrial Schools	53.65	66.20	86.35	102.62	113.21	422.03
4. Technical Institutes	58.52	76.68	83.61	91.25	111.52	421.58
5. Vocational Education Development	28.99	3.80	0.46	0.46	0.46	34.17
6. Educational Orientation and Teacher Training	2.41	2.77	2.93	3.11	3.49	14.71
7. Agricultural Engineering Centre	1.69	2.51	2.36	2.04	1.38	9.98
8. Mechanical Service Unit	1.87	2.39	2.51	2.64	3.19	12.60
9. Supervision of Registration, Examination and Inspection of Vocational Schools	2.30	2.46	2.59	2.71	2.89	12.95
10. Design and Supervision of Construction Projects	1.10	1.18	1.25	1.32	1.50	6.35
11. Short Course Training and Mobile Trade Training Units	27.20	29.47	32.00	34.76	39.01	162.44
12. A.R.D. Vocational Training	0.79	0.85	0.91	0.97	1.04	4.56
New Project						
1. King Mongkut Institute of Technology	35.16	21.70	20.94	19.30	19.40	116.50
Department of Teacher Education	325.30	368.62	393.51	348.60	280.46	1,716.49
Continuing Projects						
1. Teacher Training at Degree Level	66.62	73.43	80.13	86.41	93.46	400.05

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
2. Teacher Training at Certificate Level	251.95	284.29	300.65	249.02	173.63	1,259.54
3. Educational Orientation	2.19	5.56	6.95	7.43	7.37	29.51
4. Upgrading of Teachers Qualifications	2.73	2.82	2.86	2.91	2.96	14.27
5. Psychological Research	0.99	1.32	1.55	1.58	1.72	7.16
6. Compile Questionaires on Standard Test	0.82	1.20	1.37	1.25	1.32	5.76
Department of Educational Techniques	4.40	12.54	11.34	12.62	15.69	56.59
Continuing Projects						
1. Establishment of New Curriculum	0.47	0.49	0.55	0.59	0.63	2.73
2. Promotion of Textbook Production	0.92	5.39	6.47	7.57	10.45	30.80
3. Survey and Research on Education	0.75	4.24	1.73	1.66	1.59	9.97
4. Educational Material Centre	1.04	1.14	1.25	1.36	1.48	6.27
5. Exhibition on Children's Day	0.36	0.41	0.46	0.52	0.59	2.34
6. Planetarium and Observatory	0.86	0.87	0.88	0.92	0.95	4.48
Department of Physical Education	23.91	27.92	28.80	34.17	37.21	152.01
Continuing Projects						
1. Increase the Output of Physical Education Teachers						
1.1 Degree Level	6.28	7.99	4.20	4.42	4.94	27.83
1.2 Certificate Level	3.81	3.29	8.47	12.85	11.76	40.18
2. Promotion of Sports in Schools and Community	1.81	1.73	1.75	1.79	1.92	9.00
3. Improvement of Physical Education	6.72	4.60	4.28	4.02	4.38	24.00
4. Boy Scouts Development	1.44	2.84	2.57	2.86	3.69	13.40
5. Junior Red Cross Development	0.54	0.76	0.87	1.02	1.41	4.60
6. Improvement of National Stadium	3.31	3.12	2.80	2.90	2.87	15.00
New Projects						
1. Student Health Promotion	—	1.30	1.40	1.60	2.70	7.00
2. Student Inspector Project	—	1.35	1.40	1.60	1.65	6.00
3. Teacher Orientation and Training	—	0.94	1.06	1.11	1.89	5.00
Department of Fine Arts	6.72	8.01	8.52	9.90	10.75	43.90
Continuing Projects						
1. Musical Arts and Drama Schools	2.76	3.20	3.50	3.80	4.15	17.41
2. Artistic Education	1.22	1.70	2.12	2.40	2.70	10.14
3. Musical Arts and Drama School (Chiang Mai)	2.74	3.11	2.90	3.70	3.90	16.35

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
National Youth Promotion Committee, Office of the Prime Minister	4.59	15.00	15.00	15.00	12.53	62.12
New Projects						
1. Rural Youth Development	4.30	15.00	15.00	15.00	12.53	62.12
2. Urban Youth Development	0.29	—	—	—	—	0.29
Universities	748.14	855.75	972.52	1,102.18	1,257.13	4,935.72
Kasetsart University	78.997	77.328	83.897	122.599	116.619	479.440
1. Continuing Projects						
1.1 Office of the Rector	9.971	12.217	18.481	44.702	37.338	122.709
1.2 Institute of Plant and Crop Research	2.090	1.257	1.337	1.422	1.499	7.605
1.3 Faculty of Agriculture	21.962	16.387	16.126	16.599	18.406	89.480
1.4 Faculty of Veterinary Medicine	3.466	2.870	3.600	3.766	3.646	17.388
1.5 Faculty of Economics and Business Administration	3.272	4.719	5.382	3.961	4.246	21.580
1.6 Faculty of Forestry	4.056	4.963	5.465	5.762	6.175	26.421
1.7 Faculty of Fisheries	2.410	2.230	2.422	2.642	2.853	12.557
1.8 Faculty of Engineering	4.299	5.828	6.679	9.504	9.628	35.938
1.9 Faculty of Sciences and Arts	16.487	16.299	13.777	22.814	20.105	90.482
1.10 Faculty of Education	8.130	7.362	7.216	7.905	8.022	38.535
1.11 Graduate School	0.548	0.790	1.006	1.116	1.255	4.715
1.12 Institute of Research and Food Production	1.284	1.284	1.284	1.284	1.284	6.420
1.13 University Development Project	1.122	1.122	1.122	1.122	1.122	5.610
	—	—	—	—	—	—
Khon Kaen University	44.148	77.161	76.202	76.242	115.317	389.070
1. Continuing Projects						
1.1 Office of the Rector	16.451	17.202	11.746	9.535	37.016	91.950
1.2 Faculty of Agriculture	5.379	6.914	7.117	7.759	10.512	37.681
1.3 Faculty of Engineering	7.219	8.667	8.647	8.995	8.482	42.010
1.4 Faculty of Education	7.135	12.230	8.802	7.720	13.873	49.760
1.5 Faculty of Sciences	7.058	11.326	13.626	11.322	13.340	56.672
2. New Projects						
2.1 Health Sciences Centre						
2.1.1 Nursing Education	0.906	12.822	10.264	10.911	3.700	38.603
2.1.2 Biological Science Centre	—	8.000	8.000	3.500	4.894	24.394
2.1.3 Establishment of New Hospital	—	—	8.000	16.500	23.500	48.000

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
Chulalongkorn University	124.888	134.820	157.436	168.874	180.393	766.411
1. Continuing Projects						
1.1 Office of the Rector	3.477	13.481	12.047	12.062	13.245	54.312
1.2 Faculty of Sciences	24.354	22.221	22.430	24.221	23.446	116.672
1.3 Faculty of Engineering	12.702	16.718	18.548	18.843	19.688	86.499
1.4 Faculty of Arts	12.270	8.510	9.164	9.687	10.142	49.773
1.5 Faculty of Education	14.157	11.227	15.127	15.989	14.427	70.927
1.6 Faculty of Commerce and Accountancy	5.742	6.420	7.000	8.127	8.519	35.808
1.7 Establishment of Faculty of Mass Communication	3.906	1.985	2.394	2.196	2.525	13.006
1.8 Faculty of Architecture	3.096	3.280	3.500	3.626	3.722	17.224
1.9 Faculty of Veterinary Science	4.439	3.864	3.940	3.560	3.625	19.428
1.10 Faculty of Political Science (Including the Establishment of Faculty of Law)	3.162	5.210	6.640	6.940	6.919	28.871
1.11 Faculty of Economics	4.787	1.905	3.776	2.360	2.247	15.075
1.12 Graduate School	1.967	2.126	2.382	3.804	3.285	13.564
1.13 Faculty of Medicine	21.260	20.632	22.758	26.640	31.813	128.103
1.14 Establishment of Faculty of Medical Technology	—	1.206	1.674	2.009	2.472	7.361
1.15 Faculty of Dentistry	—	5.672	10.055	10.627	13.436	39.790
1.16 Faculty of Pharmacy	—	3.800	7.382	8.033	9.599	28.814
1.17 Population Institute	0.323	0.615	0.845	0.954	1.112	3.849
1.18 Computer Centre	1.541	2.258	2.640	3.364	3.609	13.412
1.19 University Development Project	2.705	2.800	2.800	2.800	2.800	13.905
2. New Project						
2.1 Establishment of Medical Research Centre	—	0.890	2.334	3.032	3.762	10.018
Chiang Mai University	111.345	136.765	161.664	181.563	209.794	801.131
1. Continuing Projects						
1.1 Office of the Rector	19.721	20.011	23.460	25.814	27.608	116.614
1.2 Crop Rotation Project	0.509	0.531	0.555	0.580	0.606	2.781
1.3 Faculty of Education	4.833	6.726	8.740	9.128	12.074	41.501
1.4 Faculty of Engineering	9.710	5.603	3.669	4.808	5.598	29.388
1.5 Faculty of Medicine	49.827	56.342	68.732	83.459	98.552	356.912
1.6 Faculty of Sciences	13.643	10.395	12.703	10.962	12.533	60.236
1.7 Faculty of Social Science	3.573	3.682	5.971	4.500	4.647	22.373
1.8 Faculty of Agriculture	4.253	4.998	5.052	5.626	6.137	26.066

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
1.9 Faculty of Humanities	5.276	4.849	5.784	5.100	5.425	26.434
1.10 Establishment of Faculty Dentistry	—	7.231	6.449	7.815	9.489	30.984
1.11 Establishment of Faculty of Pharmacy	—	6.047	6.716	7.970	8.443	29.176
1.12 Establishment of Faculty of Medical Technology	—	4.059	6.545	8.521	11.255	30.380
1.13 Establishment of Faculty of Nursing Education	—	6.291	7.288	7.280	7.427	28.286
2. New Project	—	—	—	—	—	—
Thammasart University	36.174	36.563	45.518	50.188	53.817	222.260
1. Continuing Projects						
1.1 Office of the Rector	6.583	6.811	10.887	12.936	14.171	51.388
1.2 Faculty of Political Science	2.507	2.715	2.881	3.138	3.320	14.561
1.3 Faculty of Economics	5.577	5.132	5.404	5.714	6.312	28.139
1.4 Faculty of Law	2.503	2.509	2.634	2.760	3.238	13.644
1.5 Faculty of Commerce and Accountancy	4.075	4.195	4.388	4.604	4.844	22.106
1.6 Faculty of Social Administration	2.512	2.955	3.558	3.813	4.032	16.870
1.7 Faculty of Liberal Arts	10.307	10.311	12.928	14.529	15.269	63.344
1.8 Department of Journalism and Mass Communication	1.910	1.735	2.638	2.494	2.431	11.208
1.9 University Development Project	0.200	0.200	0.200	0.200	0.200	1.000
2. New Projects						
2.1 Office of the Rectore	Budget is included in the Office of the Rector					
— Audio - visual Centre						
— Research Centre						
2.2 Faculty of Liberal Arts						
— Foreign Language Centre	Budget is included in the Faclty of Liberal Arts					
— Twilight Programme						
Mahidol University	239.889	225.881	255.817	288.251	353.730	1,363.568
1. Continuing Projects						
1.1 Office of the Rector	13.163	8.527	9.358	10.606	12.302	53.956
1.2 Faculty of Medicine (Siriraj Hospital)	101.520	98.382	119.081	131.945	152.179	603.044
1.3 Faculty of Dentistry	8.180	Move to be under Chulalongkorn University				8.180
1.4 Faculty of Pharmacy	4.790					4.790
1.5 Faculty of Public Health	5.904	6.422	7.042	6.796	14.623	40.787
1.6 Faculty of Tropical Medicine	9.819	5.889	7.417	8.648	5.463	37.236
1.7 Faculty of Medical Technology	4.868	6.636	2.337	3.671	1.758	19.236
1.8 Faculty of Pre - Medical Science	20.151	19.096	21.532	20.477	31.482	112.738

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
1.9 Graduate School	5.137	5.980	6.695	7.244	7.794	32.850
1.10 Faculty of Medicine (Ramathibodi Hospital)	53.153	53.147	57.390	64.216	75.836	304.542
1.11 Faculty of Dentistry (Phyathai)	6.315	9.228	8.180	8.429	14.623	46.775
1.12 Faculty of Pharmacy (Phyathai)	4.475	4.437	5.103	8.921	10.963	33.899
1.13 University Development Project	1.280	1.300	1.300	1.300	1.300	6.480
1.14 English Programme	0.334	0.400	0.400	0.400	0.400	1.934
2. New Project						
2.1 Establishment of Second Campus at Salaya and Faculty of Social Science	—	6.437	10.045	15.598	25.007	59.087
Silpakorn University	14.409	32.871	33.637	35.920	37.186	154.023
1. Continuing Projects						
1.1 Office of the Rector (Thapra Palace)	1.949	2.330	2.747	2.718	3.064	12.808
1.2 Faculty of Archaeology	1.205	0.360	0.240	0.112	—	1.917
1.3 Faculty of Fine Arts	1.265	1.390	1.476	1.544	1.588	7.263
1.4 Faculty of Decorative Arts	1.043	3.189	1.263	1.329	1.476	8.300
1.5 Faculty of Architecture	1.375	1.265	2.106	1.787	2.047	8.580
1.6 Office of the Rector (Nakhon Prathom)	3.174	7.626	9.789	13.847	13.063	47.499
1.7 Faculty of Arts	2.290	4.395	4.051	4.539	4.930	20.205
1.8 Faculty of Education	0.727	1.659	1.963	2.160	2.369	8.878
1.9 Faculty of Sciences	1.381	7.647	7.682	5.316	5.727	27.753
2. New Projects						
2.1 Graduate School	—	0.850	1.040	1.220	1.460	4.570
2.2 Institute of Archaeology	—	1.160	1.280	1.348	1.462	5.250
Prince of Songkhla University	56.193	94.918	118.054	137.606	148.581	555.352
1. Continuing Projects						
1.1 Office of the Rector	22.212	44.429	50.177	63.353	66.471	246.642
1.2 Faculty of Engineering	13.026	7.460	7.075	8.066	9.827	45.454
1.3 Faculty of Sciences	9.825	10.769	13.338	13.850	13.615	61.397
1.4 Faculty of Education	11.130	8.450	8.357	7.827	6.700	42.464
2. New Projects						
2.1 Establishment of Faculty of Agriculture	—	5.032	7.892	6.671	9.488	29.083
2.2 Establishment of Faculty of Medicine	—	18.778	31.215	37.839	42.480	130.312

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
National Institute of Development Administration	17.607	14.348	15.169	15.805	16.496	79.425
1. Continuing Projects						
1.1 Office of the Rector	8.354	4.142	4.294	4.438	4.642	25.870
1.2 Faculty of Public Administration	1.477	1.521	1.609	1.715	1.830	8.152
1.3 Faculty of Business Administration	1.250	1.372	1.455	1.542	1.620	7.239
1.4 Faculty of Development Economics	1.273	1.604	1.883	1.954	2.036	8.750
1.5 Faculty of Applied Statistics	1.289	1.576	1.642	1.710	1.755	7.972
1.6 Research Centre	1.408	1.548	1.593	1.620	1.657	7.826
1.7 Training Centre	0.908	0.965	1.006	1.055	1.106	5.041
1.8 Development of Document Centre	1.278	1.225	1.265	1.307	1.354	6.429
1.9 Foreign Language Programmes	0.370	0.395	0.422	0.464	0.496	2.147
	—	—	—	—	—	—
Ram Kamhaeng University	24.490	25.100	25.120	25.145	25.150	125.000
Grand Total	5,197.82	5,733.76	6,296.23	6,785.09	7,198.24	31,212.04

Remarks

1. University Development Project
   1.1 Administration cost is included under the budget of the Office of the National Education Council.
   1.2 Operating cost is included under the budget of universities concerned.
2. English Development Centre
   2.1 Construction Cost for the first year of the project is included under the budget of Mahidol University
   2.2 Administrative and Operating cost partly included under the budget of Mahidol University and partly under the budget of the Office of the National Education Council.

Reserved Budget (Second Priority Projects)

	1972—1976 (million baht)
1. Chulalongkorn University	**69.500**
1.1 Establishment of Faculty of Agriculture	15.375
1.2 Establishment of Faculty of Fine Arts	9.107
1.3 Establishment of Community College of the East	15.304
1.4 Establishment of Asian Studies Institute	2.575
1.5 Establishment of Social Science Institute	2.767
1.6 Establishment of Thai Studies Institute	2.369
1.7 Establishment of Education Technique Centre	6.454
1.8 Establishment of Medical Faculty	6.791
1.9 Establishment of Computer Centre	8.828
2. Khon Kaen University	**17.220**
2.1 Establishment of New Hospital	17.220
3. Chiang Mai University	**4.629**
3.1 Establishment of Faculty of Fine Arts	4.629
4. Mahidol University	**6.700**
4.1 Establishment of Population Education Institute	3.896
4.2 Office of the Rector	2.804
5. Silpakorn University	**17.840**
5.1 Establishment of Demonstration School	6.740
5.2 Establishment of Liberal Arts Faculty	11.100
6. Prince of Songkhla University	**76.179**
6.1 Establishment of Faculty of Social Science	22.650
6.2 Establishment of Faculty of Humanities	26.559
6.3 Establishment of Faculty of Medicine	26.970
Total Reserved Budget	192.059

2. Foreign Loans

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
1. Kasetsart University Development						280.80
2. Expansion and Improvement of Technical Education						85.90
3. Expansion and Improvement of Agricultural Institutions at College and School Level						97.34
4. Improvement of Trade and Industrial Schools						170.56
5. Expansion and Improvement of Teacher Training at the Higher Certificate and Postgraduate Levels						73.63
6. Expansion and Diversification of M.S. 1 - 3 in Rural Areas						150.08
7. Development of Educational Television						23.71
8. Curriculum Development and Improvement of Educational Technology Centre						20.80
9. Expansion and Diversification of Regional Secondary Schools						60.32
10. Prince of Songkhla University Development						237.12
11. Development of Health Science Centre, Khon Kaen University						n.a.
Total Fareign Loans						1,200.26

Other Potential Projects under Consideration

1. Tak Technical Institute Development.
2. Prototype Production and Training Centre.
3. Improvement of 72 Trade and Industrial Schools.
4. Establishment of Mobile Trade Training Schools Regional Polytechnic Schools and Mobile Agricultural Schools.
5. Improvement of Agriculture and Mechanic College at Surin.
6. Establishment of Ubon Technical Institute.
7. Provision of Volunteers for Vocational and Technical Schools.
8. Provision of Volunteers for Teacher Training Institute.
9. Establishment of the Faculty of Medicine, Prince of Songkhla University.
10. Training and Education Research in the Faculty of Science, Chulalongkorn University.
11. Exchange Programme between Faculty of Agriculture, Chiang Mai University and Wye College.
12. National Library Development Programme.
13. Development and Improvement of Educational Planning.
14. Development of Nutrition Education.
15. National School Health Programme.
16. Establishment of Coordinating Centre of Guidance Services.
17. Improvement of Educational Administration.
18. Teacher Training and Education Research, Faculty of Education, Chiang Mai University.
19. University Development Project.
20. Establishment of Faculty of Agricultural Project, Prince of Songkhla University.
21. Improvement of Faculty of Dentistry, Chiang Mai University.
22. Development of Health Science Centre and Faculty of Nursing, Khon Kaen University.

3. Foreign Grants

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
1. Expansion of Improvement of Teacher Training	2.683	6.698	6.676	2.932	2.683	21.526
2. Improvement of Institute for Promotion of Teaching Science and Technology	—	—	—	—	—	98.030
3. Development of Teacher Education	6.698	6.698	6.802	6.802	6.926	33.926
4. Library Improvement of Teacher Training Institutions	9.693	10.317	11.045	11.045	12.355	54.454
5. Improvement of Physical Education Teacher Training at Degree Level	4.035	6.157	4.680	4.680	4.680	24.232
6. Improvement of Trade and Industrial Schools	12.272	12.396	12.396	12.396	12.396	69.856
7. Development of King Mongkut's Institute of Technology	46.405	53.726	44.748	34.757	24.814	204.650
8. Expansion and Improvement of Technical Education	29.806	23.296	24.648	24.294	26.125	128.169
9. Development of Agricultural Education and Agricultural Industry	—	—	—	—	—	50.211
10. Improvement of Potharam Weaving School	8.237	4.056	6.448	1.040	32.86	23.067
11. Establishment and Improvement of Marine Fisheries and Ship Building School	—	—	—	—	—	67.205
12. Expansion and Diversification of M.S. 1 - 3 in Rural Areas	9.235	12.085	12.085	10.213	7.634	51.252
13. Improvement of Language Teaching in Secondary Schools	12.542	13.187	13.832	14.477	15.142	69.180
14. Mobile Supervisory Units	1.706	2.371	2.371	2.371	1.456	10.275
15. Improvement of Adult Education	6.344	5.470	7.467	5.990	7.342	32.613
16. Improvement of Demonstration Schools at Primary Education Level	6.386	6.781	6.510	6.011	—	25.688
17. Establishment of Regional In-service Training Centre	3.702	1.622	2.808	1.248	0.769	10.149
18. Curriculum Development and Education Technology Centre	0.624	2.933	3.869	4.118	4.056	15.600
19. School Broadcasting and Television	1.726	1.789	0.894	0.894	0.187	5.490
20. Establishment of Eye Research Laboratory Project, Chulalongkorn University	0.125	0.114	0.010	0.010	0.010	0.269
21. Establishment of Oto - laryngology Laboratory Project, Chulalongkorn University	0.125	0.218	0.031	0.031	0.031	0.436
22. Improvement of Chemistry Education at Undergraduate and Graduate Level, Chulalongkorn University	0.936	0.312	0.260	0.208	—	1.716

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
23. Improvement of Teaching and Research for Bio - Chemistry Project, Chulalongkorn University	1.864	0.229	0.229	0.229	0.229	2.780
24. Improvement of Department of Geology, Chulalongkorn University	0.468	0.468	0.052	0.052	0.052	1.092
25. Establishment of Department of Metallurgical Engineering, Chulalongkorn University	1.747	1.622	1.092	1.248	0.915	6.624
26. Development Programme on Teaching Arts Education Project, Chulalongkorn University	0.021	0.085	0.064	0.104	0.042	0.316
27. Improvement and Development of the Curriculum for Compulsory Education	0.187	0.177	0.187	0.177	—	0.728
28. Central Library at Chulalongkorn University	0.031	0.021	0.042	—	—	0.094
29. National Laboratory for Animal Breeding Centre, Mahidol University	—	0.416	1.570	0.104	—	2.090
30. Development of Dentistry School, Phyathai School of Dentistry, Mahidol University	2.147	2.088	1.897	1.252	0.113	7.497
31. Development of Medical Research Teaching, Mahidol University	0.104	0.062	0.062	0.062	0.062	0.352
32. Cardiology Project, Mahidol University	0.073	0.099	0.054	0.054	0.081	0.361
33. Development of Nursing Education and Nursing Administration, Mahidol University	0.114	0.010	0.122	0.010	0.034	0.290
34. Opthalmology Department, Ramathibodi Hospital, Mahidol University	0.533	—	—	—	—	0.533
35. Development of School of Medical Physics, Mahidol University	0.062	0.021	0.021	—	—	0.104
36. Medical Research Programme, Mahidol University	4.160	—	—	—	—	4.160
37. The Establishment of the School of X - Ray Technology, Mahidol University	0.471	0.008	0.006	0.004	0.002	0.491
38. Programme for Nutritional Training Education, Mahidol Universiyt	0.416	0.312	0.416	0.312	0.312	1.768
39. Curriculum Development of Health Education, Mahidol University	0.166	0.125	0.146	0.125	0.161	0.728
40. Development of Sanitary Science Course at Degree Level, Mahidol University	0.270	0.104	0.208	—	—	0.582
41. Improvement and Development of Broadcasting Education, Kasetsart University	0.150	0.150	0.150	0.150	0.150	0.750
42. Improvement and Development of Faculty of Science and Arts, Khon Kaen University	—	2.912	—	—	—	2.912
43. Programme for Agricultural Research and Training, Khon Kaen University	0.312	0.520	—	—	—	0.832

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
44. Establishment of Faculty of Engineering, Chiang Mai University	2.981	—	—	—	—	2.981
45. Development and Improvement of the Faculty of Science, Chiang Mai University	0.620	0.832	0.624	0.832	0.832	3.744
46. Radio - Immunoassays of Gonadotrophins and Steroids, Chiang Mai University	0.435	0.104	0.104	0.104	0.104	0.854
47. Programme in Research for Cancer, Chiang Mai University	4.160	—	—	—	—	4.160
Grand Total	184.779	180.445	174.826	148.336	132.986	821.372

Potential Projects

1. Tak Technical Institute Development.
2. Prototype Production and Training Centre.
3. Improvement of 72 Trade and Industrial Schools.
4. Establishment of Mobile Trade Training Schools, Regional Polytechnic Schools, and Mobile Agricultural Schools.
5. Improvement of Agriculture and Mechanic College at Surin.
6. Establishment of Ubon Technical Institute.
7. Provision of Volunteer for Vocational and Technical Schools.
8. Provision of Volunteers for Teacher Training Institute.
9. The Establishment of the Faculty of Medicine, Prince of Songkhla University.
10. Training and Education Research in the Faculty of Science, Chulalongkorn University.
11. Link Between Faculty of Agriculture and Wye College, Chiang Mai University.
12. National Library Development.
13. Development and Improvement of Educational Planning.
14. Development of Nutrition Education.
15. National School Health Programme.
16. The Coordinating Centre of Guidance Services.

(million baht)

Government Agency / Project	1972	1973	1974	1975	1976	Total
17. Improvement of Educational Administration. 18. Teacher Training and Education Research, Faculty of Education, Chiang Mai University. 19. University Development Project. 20. Establishment of Faculty of Agricultural Project, Prince of Songkhla University. 21. Improvement of Faculty of Dentistry, Chiang Mai University. 22. Development of Health Science Centre and Facluty of Nursing, Khon Kaen University. 23. Improvement of Adult Education.						

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